

CONFIDENTIAL
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND
DECLASSIFICATION

INFORMATION REPORT

The following information was obtained from

On April 1, 1977, the following information was obtained from

MEMORANDUM FOR

MEMORANDUM FOR

MEMORANDUM FOR

APPENDIX I

THE FOLLOWING INFORMATION WAS OBTAINED FROM
TELETYPE UNIT BY AIRMAIL AT 11

APPENDIX I

SECTION	PAGE
A. Findings of Fact of Trial Court.....	1
B. Conclusions of Law of Trial Court.....	101
C. Opinion of Trial Court.....	113

SECTION A

FINDINGS OF FACT OF TRIAL COURT¹

STATUS OF THE PARTIES²

1. Complainants are eighteen privately owned public utility corporations duly qualified to engage as public utilities in the States of Tennessee, Georgia, Mississippi, Alabama, Kentucky, North Carolina, South Carolina, Virginia, and West Virginia, and are engaged principally in the business of generating, transmitting and distributing and selling electricity, or distributing and selling electricity, or transmitting and selling electricity as public utilities in said States. [Undisputed.]

2. The defendant Tennessee Valley Authority is a body corporate created by an act of Congress approved May 18, 1933, and has an office in Knoxville, Knox County, Tennessee. [Undisputed.]

3. The defendants Arthur E. Morgan, Harcourt A. Morgan, and David E. Lilienthal are, severally, residents of Knox County, Tennessee, and are the three chief executive officers and constitute the Board of Directors of the Tennessee Valley Authority. [Undisputed.]

4. This is an action of a civil nature, in equity, originally filed in the Chancery Court of Knox County, Tennessee, and thereafter duly removed by the defendants to this Court. [Undisputed.]

5. This is a suit in equity and involves questions arising under the Constitution and laws of the United States, and the amount in controversy exceeds, exclusive of interest and costs, the sum or value of \$3,000. [Undisputed.]

¹ Filed February 23, 1938, ordered by the court to be effective as of January 24, 1938. Reprinted in the record at pages 584-655.

² Findings 1 to 37, inclusive, are adoptions by the court of suggested findings of appellants (see r. 566). Naturally, appellants do not assign error on the making of these findings. Therefore, citations to the record for these findings have been omitted.

FINDINGS OF FACT OF TRIAL COURT

6. The Tennessee Electric Power Company is a public utility corporation organized under the laws of the State of Maryland, is duly qualified to carry on its business as a public utility in the States of Tennessee and Georgia, and has its principal place of business in the city of Chattanooga, Tennessee. For more than twenty years said company and its predecessors have been engaged in the electric-power business, and today it is distributing electricity in 66 counties in Tennessee, 4 counties in Georgia, and 455 communities in Tennessee and Georgia, including the cities of Chattanooga and Nashville, Tennessee. All of the operating territory of the company, with the exception of a small area north of Nashville, Tennessee, is located within a 100-mile radius of one or more TVA generating plants constructed, under construction, or authorized to be constructed. Said company owns and operates 1,559 miles of transmission lines and 5,226 miles of distribution lines, of which 2,677 are classified as rural distribution lines, in said States of Tennessee and Georgia. It owns generating facilities with a total installed capacity of 244,009 kilowatts and leases generating facilities with a total installed capacity of 6,500 kw. In addition to these facilities the company is preparing to begin construction of a steam generating plant at Bordeaux, Tennessee, with an initial installed capacity of 25,000 kw. and provision for future increase to 150,000 kw. The company's steam plant at Hale's Bar was constructed to provide for expansion of its present capacity of 40,000 kw. to an ultimate capacity of 100,000 kw. Said company also owns hydro sites capable of producing, when developed, 76,000 kw. and has interconnections with other utilities, the total capacity of the interconnections being 160,000 kva. Said company also owns and operates transportation systems in the cities of Chattanooga and Nashville, Tennessee, water systems in 11 municipalities, ice plants in 7 municipalities, and a telephone system in one municipality. For a period of years these

FINDINGS OF FACT OF TRIAL COURT

businesses have been operated under the same management with the electric operations and as one business, and the severance of one from the other would have an adverse effect upon the company.

In the year ending September 30, 1937, the company served 136,470 customers, of which 38,399 were classified as rural customers, and, exclusive of sales to other utilities, sold 767,646,665 kilowatt hours, of which 496,923,761 kwh., or 64.7% represented sales to industrial customers. The company has issued an[d] outstanding \$49,313,300 in bonds, 241,296 shares of \$100 par value preferred stock, and 425,000 shares of no par common stock, all of which were issued with the approval of the Railroad and Public Utilities Commission of Tennessee; and it has 3,500 employees. [Undisputed.]

7. Franklin Power & Light Company is a public utility corporation organized under the laws of the State of Tennessee, is duly authorized to carry on its business as a public utility therein, and has its principal place of business in the city of Franklin, Tennessee. Ever since the organization of the company in 1929 it has been engaged in the electric-power business, distributing electricity in and around the city of Franklin, Tennessee. Its operating territory lies approximately 80 miles from Wilson Dam. The company owns and operates a distribution system consisting of 15 miles of line. It also owns a steam generating plant with an installed capacity of 1,800 kw., which is maintained as a standby plant for The Tennessee Electric Power Company, from which company the Franklin Power & Light Company purchases its power requirements. In the year 1936 the company served 901 customers and sold a total of 3,219,758 kwh. Said company has issued and outstanding \$100,000 in bonds and 1,900 shares of \$100 par value stock, all of which were issued with the approval of the Railroad & Public Utilities Commission of Tennessee. [Undisputed.]

FINDINGS OF FACT OF TRIAL COURT

8. Memphis Power & Light Company is a public utility corporation organized under the laws of the State of New Jersey, is duly qualified to carry on its business as a public utility in the State of Tennessee, and has its principal place of business in the city of Memphis, Tennessee. For more than 20 years said company and its predecessors have been engaged in the electric-power business, and it is now distributing electricity in Shelby County, Tennessee, and in 37 towns and communities therein, including the city of Memphis. The operating territory of the company is from 74 to 105 miles from Pickwick Dam. Said company owns and operates 319 miles of transmission lines and 905 miles of distribution lines. It owns a steam generating plant with an installed capacity of 54,000 kw., has interchange facilities with Arkansas Power & Light Company and Mississippi Power & Light Company, and owns a site for the erection of additional generating facilities with an installed capacity of from 20,000 to 30,000 kw. It owns and operates a natural-gas distribution system throughout its territory, from which approximately 37% of the total gross revenues of the company are derived. The gas and electric properties are jointly operated under the same management, and a loss of all or a substantial part of its electric business would increase the cost of operating the gas department. In the year ending July 30, 1937, the company served 56,952 customers and, exclusive of sales to other utilities, sold 191,888,000 kwh., of which 61,841,000 kwh., or 32.23%, represented sales to industrial customers. The company has issued and outstanding \$22,275,000 in bonds, 30,000 shares of no par value \$7 preferred stock, 32,000 shares of no par value \$6 preferred stock and 7,200 shares of no par common stock, all of which were issued with the approval of the Railroad & Public Utilities Commission of Tennessee. [Undisputed.]

9. Southern Tennessee Power Company is a public utility corporation organized under the laws of the State of

FINDINGS OF FACT OF TRIAL COURT

Delaware, is duly qualified to carry on its business as a public utility in the States of Alabama and Tennessee, and has its principal place of business in the city of Chattanooga, Tennessee. The company owns and operates a high-tension transmission line from Wilson Dam, Alabama, to Iron City, Tennessee, a distance of approximately 15 miles, and is engaged in the business of transmitting electric energy over said transmission line, which constitutes a connection between the Alabama Power Company and the Tennessee Electric Power Company. The company has outstanding a note amounting to \$380,000 and 10 shares of no par stock. [Undisputed.]

10. Birmingham Electric Company is a public utility corporation organized as such under the laws of the State of Alabama and has its principal place of business in the city of Birmingham, Alabama. For many years said company and its predecessors have been engaged in the electric-power business, and it is now distributing electricity in the city of Birmingham, Alabama, and the metropolitan district thereof, including the towns of Bessemer, Jonesboro, Brighton, Lipscomb, Fairfield, Irondale, Homewood and Tarrant City, as well as in Jefferson County, Alabama, all of which territory was set aside to it by order of the Alabama Public Service Commission. The company's operating territory is located approximately 66 miles from Gunterville Dam. Said company owns and operates 1,057.52 miles of distribution pole lines. It purchases at wholesale from the Alabama Power Company the electricity which it distributes and owns a steam generating plant with an installed capacity of 11,300 kw., which is used as a standby station. It also owns and operates a transportation system throughout its territory, which contributes about 33% of the total gross revenues of the company, and a steam heating system serving a substantial portion of the business district of the city of Birmingham, which contributes approximately 1% of the company's total gross revenues.

FINDINGS OF FACT OF TRIAL COURT

These several businesses have for a period of years been jointly operated. The company served 68,110 customers, and in 1936, exclusive of interdepartmental sales, sold 208,113,400 kwh., of which 116,429,366 kwh., or approximately 56% of its total sales, represented sales to industrial customers. [Undisputed.]

11. Mississippi Power Company is a public utility corporation organized under the laws of the State of Maine, is duly qualified to carry on its business as a public utility in the State of Mississippi, and has its principal place of business in the City of Gulfport, Mississippi. For more than 12 years said company and its predecessors have been engaged in the electric-power business, and today it is distributing electricity in 34 counties and in 147 towns and communities in the State of Mississippi. Most of the operating territory of the company is located within 250 miles from Pickwick and Guntersville Dams, and much of the operating territory lies within 100 and 150 miles from said TVA generating plants. Said company owns and operates 857.41 pole miles of transmission lines and 1,080.5 pole miles of distribution lines. It owns generating facilities with a total installed capacity of 18,702 kw., and it has, subject to lease or contract, generating facilities with an installed capacity of 6,450 kw. The company, however, purchases substantially all its power requirements from the Alabama Power Company at 4 interchange points having a combined capacity of 66,300 kw. As a part of its business the company owns and operates a transportation system in the city of Hattiesburg, Mississippi, the total gross revenues from which in the year 1936 were less than 1% of the total revenues received by the company from all sources. In 1936 the company, within a 100-mile radius of Pickwick Dam, served 1,247 customers, sold 2,102,086 kwh., and derived a revenue therefrom of \$88,254.39; within a 150-mile radius of said dam it served 6,068 customers, sold 14,816,009 kwh., and derived a revenue therefrom of

FINDINGS OF FACT OF TRIAL COURT

\$484,839.85; within a 250-mile radius of said dam it served 20,772 customers, sold 87,936,552 kwh., and derived a revenue therefrom of \$1,768,553.86. The total kwh. sales to regular customers in that year amounted to 121,160,760 kwh., of which 64,216,059 kwh., or 53%, represented sales to industrial customers. The company has issued and outstanding \$10,690,500 in first mortgage bonds, 39,092 shares of preferred stock, and 450,000 shares of common stock; and it has 512 employees. [Undisputed.]

12. Appalachian Electric Power Company is a public utility corporation organized under the laws of the state of Virginia, is duly qualified to carry on its business as a public utility in the States of Virginia, Tennessee, and West Virginia, and has its principal place of business in the city of Roanoke, Virginia. Said company is engaged in the electric-power business and distributes electricity in 29 counties in Virginia, 20 counties in West Virginia, and 522 towns and communities in Virginia and West Virginia. Most of the operating territory of the company is located within 250 miles of Norris Dam; much of its territory is located within 150 miles of said dam, and some of its territory is located within 100 miles of said dam. Said company owns and operates 1,767.88 pole miles of transmission lines, 4,663.79 pole miles of distribution lines, of which 2,527 miles are classified as rural lines, and in addition, on August 31, 1937, had 452 miles of rural lines under construction. The company owns generating facilities with a total installed capacity of 381,390 kw. and has a purchased capacity of 43,500 kw. In 1936 within a 100-mile radius of Norris Dam the company served 439 customers, sold 337,500 kwh., and derived a revenue therefrom of \$16,236; within a 150-mile radius of said dam it served 8,171 customers, sold 69,263,102 kwh., and derived a revenue therefrom of \$1,312,443; within a 250-mile radius of said dam it served 126,700 customers, sold 1,283,307,996 kwh., and derived a revenue therefrom of \$17,690,540. The to-

FINDINGS OF FACT OF TRIAL COURT

tal kwh. sales to regular customers in that year amounted to 1,351,653,286 kwh., of which 1,153,567,845 kwh., or 85.34%, represented sales to industrial customers. The company has issued and outstanding \$80,774,000 in bonds, and preferred and common stock aggregating \$53,500,167.27, and has 3,366 employees. [Undisputed.]

13. Carolina Power Co. & Light Company is a public utility corporation organized under the laws of the State of North Carolina, is duly qualified to carry on its business as a public utility in said State and in the State of South Carolina, and has its principal place of business in the city of Raleigh, North Carolina. For more than 20 years said company and its predecessors have been engaged in the electric-power business. It is now distributing electricity in the States of North and South Carolina and 272 incorporated towns and communities therein. A portion of the company's operating territory is located within a radius of 100 miles of Norris and Fowler Bend Dams and Fontana Dam site, a part of its territory is located within a radius of 150 miles of Fowler Bend Dam and Fontana Dam site, and a part of it is located within a radius of 250 miles of Fowler Bend Dam and Fontana Dam site. Said company owns and operates 1,256 pole miles of transmission lines and 5,921 pole miles of distribution lines. It owns generating facilities with a total installed capacity of 249,050 kw., which are capable of being enlarged so as to produce an additional 80,000 kw. It owns a hydro site capable of producing, when developed, 40,000 kw. and has interconnections with other utilities, the total capacity of such interconnections being 384,000 kw. As a part of its business the company owns and operates transportation systems in Raleigh and Asheville, the gross revenues from which are less than 4% of the total gross revenues of the company. In 1936 the company served 83,836 customers and, exclusive of sales to other utilities, sold 536,521,801 kwh. In said year the company, within a radius of 100 miles

FINDINGS OF FACT OF TRIAL COURT

from Norris and Fowler Bend Dams and Fontana Dam site, sold, exclusive of sales to other utilities, 115,802,557 kwh., of which 83,553,403, or approximately 61%, represented sales to industrial customers; within a 150-mile radius of Fowler Bend Dam and Fontana Dam site it sold, exclusive of sales to other utilities, 118,167,621 kwh., of which 85,530,602 kwh., or approximately 72%, represented sales to industrial customers; and within a 250-mile radius of Fontana Dam site it sold, exclusive of sales to other utilities, 309,197,905 kwh. The company has issued and outstanding \$46,000,000 in bonds, 165,162 shares of no par value preferred stock entitled to \$6 and \$7 annual dividends, and 2,500,000 shares of no par common stock, and had as of August 1937, 1,434 regular employees and 57 temporary employees. [Undisputed.]

14. Tennessee Public Service Company is a public utility corporation organized under the laws of the State of Maine, is duly qualified to carry on its business as a public utility in the State of Tennessee, and has its principal place of business in the city of Knoxville, Tennessee. For many years said company and its predecessors have been engaged in the electric-power business, and it is now distributing electricity in Knox, Jefferson, Cocke, Sevier, Union, and Grainger Counties, Tennessee, and 37 towns and communities therein, including the city of Knoxville. The entire operating territory of the company is located within a distance of from 25 to 75 miles of Norris Dam. Said company owns and operates 180.58 miles of transmission lines and 1,063.77 miles of distribution lines. It purchases practically all of its power requirements from the complainant Carolina Power & Light Company and also owns generating facilities with an installed capacity of 3,150 kw. Said company also owns and operates a transportation system in the city of Knoxville, Tennessee, which contributes approximately 21½% of the company's total gross revenues. Both the transportation and electric properties are op-

FINDINGS OF FACT OF TRIAL COURT

erated under the same management and as one business. In the year ending September 30, 1937, the company served 30,074 electric customers and, exclusive of interdepartmental sales and sales to other utilities, sold 131,404,000 kwh., of which 73,269,000 kwh., or 55.76%, represented sales to industrial customers. The company has issued and outstanding \$7,780,000 in bonds, 50,000 shares of no par preferred stock entitled to a \$6 annual cumulative dividend per share, and 1,000,000 shares of common stock, all of which were issued with the approval of the Railroad and Public Utilities Commission of Tennessee. [Undisputed.]

15. Holston River Electric Company is a public utility corporation organized as such under the laws of the State of Tennessee with its principal place of business in the city of Knoxville, Tennessee. Said company is distributing electricity in the incorporated town of Rogersville, Tennessee, and 8 communities in Hawkins and Hamblen Counties, Tennessee, and to rural customers in said counties. The entire operating territory of the company is located within 75 miles of Norris Dam. Said company owns and operates 98.54 miles of distribution lines and purchases at wholesale power, which it distributes, from the complainant Tennessee Public Service Company. For the year ending September 30, 1937, the company sold 1,560,000 kwh. [Undisputed.]

16. Alabama Power Company is a public utility corporation organized under the laws of the State of Alabama, is duly authorized to carry on its business as a public utility therein, and has its principal place of business in the city of Attalla, Alabama. The company is engaged in the electric-power business and distributes electricity in 65 of the 67 counties of the State of Alabama and in 594 communities in the same State. Practically all of the operating territory of the company is located within 250 miles of Guntersville and Wilson Dams; most of the operating territory is located within 150 miles of said dams, and much of the territory is

FINDINGS OF FACT OF TRIAL COURT

located within 100 miles of said dams. Said company owns and operates 3,435 circuit miles of transmission lines, 2,810 miles of distribution lines within incorporated municipalities, and 4,519 miles of line classified as rural. It owns generating facilities with a total installed capacity of 571,744 kw. and has made provision for the expansion of its existing plants such that their capacities may be increased by 321,500 kw.

In 1936, exclusive of sales to the Birmingham Electric Company, the company sold within a 100-mile radius of TVA dams constructed or under construction 711,835,625 kwh. and derived a revenue therefrom of \$7,384,969.48; within a 150-mile radius of said dams it sold 961,720,184 kwh. and derived a revenue therefrom of \$11,147,768.38; and within a 250-mile radius of said dams it sold 1,018,109,064 kwh. and derived a revenue therefrom of \$12,346,658.72. In that year the total kwh. sales, exclusive of sales to utilities, amounted to 1,145,267,755 kwh., of which 948,565,825, or 82.8%, represented sales to industrial customers. The total number of customers served in that year was 123,739. The company has issued and outstanding \$96,771,600 in bonds, 367,178 shares of \$5, \$6 and \$7 preferred stock at a stated value of \$35,751,258, and 3,775,000 shares of common stock at a stated value of \$48,961,300, all of which securities issued subsequent to the creation of the Alabama Public Service Commission were issued with its approval; and it has 2,850 employees. [Undisputed.]

17. Kentucky and West Virginia Power Company, Inc., is a public utility corporation organized under the laws of the State of Kentucky, is duly authorized to carry on its business as a public utility therein, and has its principal place of business in the city of Ashland, Kentucky. Said company is engaged in the electric-power business and distributes electricity in 14 counties and in 100 towns and communities in the State of Kentucky. All of the operating territory of the company is located within 250 miles of Nor-

FINDINGS OF FACT OF TRIAL COURT

ris Dam; most of its territory is located within 150 miles of said dam, and some of its territory is located within 100 miles of said dam. Said company owns and operates 435.53 pole miles of transmission lines, 553.01 pole miles of distribution lines, of which 131 miles are classified as rural distribution lines, and in addition, on August 31, 1937, had 31 miles of rural distribution lines under construction. The company owns generating facilities with a total installed capacity of 19,500 kw. In 1936 within a 100-mile radius of Norris Dam the company served 3,713 customers, sold 30,078,589 kwh., and derived a revenue therefrom of \$685,969; within a 150-mile radius of said dam it served 9,919 customers, sold 87,946,055 kwh., and derived a revenue therefrom of \$1,700,159; within a 250-mile radius of said dam it served 21,170 customers, sold 254,600,861 kwh., and derived a revenue therefrom of \$3,314,345. The total kwh. sales to regular customers in that year amounted to 254,600,861, of which 232,243,229 kwh., or 91.32%, represented sales to industrial customers. The company has issued and outstanding \$8,499,000 in bonds, and preferred and common stock aggregating \$4,147,525, and has 435 employees. [Undisputed.]

18. Kingsport Utilities, Inc., is a public utility corporation organized under the laws of the State of Virginia, is duly qualified to carry on its business as a public utility in the State of Tennessee, and has its principal place of business in the city of Kingsport, Tennessee. The company is engaged in the electric-power business and is distributing electricity in the counties of Sullivan and Hawkins in the State of Tennessee. All of the operating territory of the company is located within a 100-mile radius of Norris Dam. Said company owns and operates 5.75 pole miles of transmission line, 133.53 pole miles of distribution lines, of which 49 miles are classified as rural distribution lines, and in addition, on August 31, 1937, had 6 miles of rural distribution lines under construction. It also owns generating

FINDINGS OF FACT OF TRIAL COURT

facilities with a total installed capacity of 11,400 kw. In the year 1936 the company served 4,358 regular customers and sold 37,468,385 kwh., of which 30,356,870 kwh., or 81%, represented sales to industrial customers. The company has issued and outstanding \$1,044,000 in bonds and \$1,000,000 of preferred and common stocks and has 98 employees. [Undisputed.]

19. Kentucky-Tennessee Light & Power Company is a public utility corporation organized under the laws of the State of Kentucky, is duly qualified to carry on its business as a public utility in said State and in the State of Tennessee, and has its principal place of business in the city of Bowling Green, Kentucky. The company is engaged in the electric-power business and distributes electricity in many counties in Tennessee and Kentucky. All of the operating territory of the company is within a 250-mile radius, and most of the operating territory is within a 100-mile radius, of one or more TVA generating plants constructed, under construction, or authorized to be constructed. Said company owns and operates many miles of transmission and distribution lines in the States of Tennessee and Kentucky. [Undisputed.]

20. West Tennessee Power & Light Company is a public utility corporation organized under the laws of the State of Florida, is duly qualified to carry on its business as a public utility in the State of Tennessee, and has its principal place of business in the city of Jackson, Tennessee. For more than 30 years said company and its predecessors have been engaged in the electric-power business, and it is now distributing electricity in 9 counties in west Tennessee and 24 incorporated towns and communities, including the city of Jackson, Tennessee. All of the operating territory of the company is from 40 to 75 miles of Pickwick Dam. Said company owns and operates 90.6 miles of transmission lines and 193.6 miles of lines classified as rural. It owns generating facilities with a total installed capacity of 5,228

FINDINGS OF FACT OF TRIAL COURT

kw. and also has interconnections with Memphis Power & Light Company, from whom it purchases power at wholesale. It owns and operates natural-gas distribution systems in 6 municipalities, ice plants in 2 municipalities, water-works systems in 3 municipalities, and a transportation system in the city of Jackson, Tennessee. For a period of years these businesses have been operated under the same management with the electric operations and as one business and are closely intermingled. For the year ending July 31, 1937, the company served 10,050 customers and, exclusive of interdepartmental sales, sold 19,322,248 kwh., of which 8,080,659 kwh., or 38.74%, represented sales to industrial customers. [Undisputed.]

21. Mississippi Power & Light Company is a public utility corporation organized under the laws of the State of Florida, is duly qualified to carry on its business as a public utility in the State of Mississippi, and has its principal place of business in the city of Jackson, Mississippi. For many years said company has been engaged in the electric-power business and at present is distributing electricity in 40 counties in Mississippi and 312 incorporated towns and communities therein, including the cities of Vicksburg, Natchez, Jackson, and Greenville. Most of the operating territory of the company is located within 250 miles from Pickwick Dam, and a substantial portion of its operating territory is within 150 miles of Wheeler and Guntersville Dams. Said company owns and operates 456.8 miles of transmission lines and 2,628.2 miles of distribution lines. The company purchases substantially all of its power requirements from the Louisiana Power & Light Company, and also owns generating facilities with an installed capacity of 19,146 kw. As a part of its business the company owns and operates transportation systems in the cities of Jackson, Greenville, and Vicksburg; natural-gas distribution systems in 24 municipalities; ice manufacturing systems in 5 municipalities; water systems in 6 munic-

FINDINGS OF FACT OF TRIAL COURT

ipalities; and leases and operates water systems in 4 municipalities. The total gross revenues from such operations in 1936 were 29% of the total gross revenues received by the company from all sources. All properties of the company are operated together as a unit, and the destruction of the whole or a substantial part of its electric business would seriously hamper the company's ability to efficiently operate its other properties. In 1936 the company, within a 150-mile radius of Pickwick Dam, served 7,779 customers, sold 18,734,247 kwh., and derived revenue therefrom of \$743,744.92; within a 250-mile radius of said dam it served 29,454 customers, sold 117,792,338 kwh., and derived revenue therefrom of \$3,063,194.36. The total kwh. sales to regular customers in that year amounted to 157,608,000 kwh., of which 87,673,000 kwh., or 55.6%, represented sales to industrial customers. The company has issued and outstanding \$16,000,000 in bonds, 69,000 shares of no par value first preferred stock entitled to a \$6 annual cumulative dividend, 35,000 shares of no par value second preferred stock entitled to a \$6 annual cumulative dividend, and 1,000,000 shares of no par common stock. [Undisputed.]

22. East Tennessee Light & Power Company is a public utility corporation organized under the laws of the State of Virginia, is duly qualified to carry on its business as a public utility in the States of Virginia, Tennessee, and North Carolina, and has its principal place of business in the city of Bristol, Tennessee-Virginia. For many years said company and its predecessors have been engaged in the electric-power business, and today it is distributing electricity in Carter, Johnson, Sullivan, Unicoi and Washington Counties, Tennessee; in Scott and Washington Counties, Virginia; in Avery County, North Carolina; and in 32 incorporated towns and communities, including the city of Bristol, Tennessee-Virginia. All of the operating territory of the company is within a radius of 135 miles of Norris Dam, the larger part of it being within a radius of

FINDINGS OF FACT OF TRIAL COURT

100 to 115 miles of said dam. Said company owns and operates 66.5 miles of transmission lines and 354.4 miles of distribution lines in said States of Tennessee, Virginia, and North Carolina. It owns generating facilities with a total installed capacity of 3,828 kw. Said company also owns a hydro site near Elizabethton, Tennessee, and has interconnections with Appalachian Electric Power Company and Edmondson Electric Company. The company also owns and operates a gas distribution system in the city of Bristol, Tennessee-Virginia, from which operation approximately 10% of the total gross revenue of the company is derived. In the year ending July 31, 1937, the company served 10,312 customers, of which 1,572 were classified as rural customers, and in 1936, sold 22,904,648 kwh., of which 9,243,729 kwh., or 40.4%, represented sales to industrial customers. The company has issued and outstanding \$2,731,000 in bonds, 2,635 shares of no par preferred stock entitled to a \$6 annual cumulative dividend, and 35,000 shares of no par common stock, all of which were issued with the approval of the Railroad & Public Utilities Commission of Tennessee; and it has 204 employees. [Undisputed.]

23. Tennessee Eastern Electric Company is a public utility corporation organized under the laws of the State of Massachusetts, is duly qualified to carry on its business as a public utility in the States of Virginia, Tennessee, and North Carolina, and has its principal place of business in the city of Bristol, Tennessee-Virginia. For many years said company and its predecessors have been engaged in the electric-power business, and at present it is distributing electricity in Carter, Greene, Johnson, Unicoi, and Washington Counties, Tennessee, and in 57 towns and communities therein, including the cities of Johnson City and Greenville, Tennessee. The operating territory of the company is located within a radius of from 50 to 100 miles of Norris Dam. Said company owns and operates 65.7 miles

FINDINGS OF FACT OF TRIAL COURT

of transmission lines and 442.7 miles of distribution lines. It owns generating facilities with a total installed capacity of 19,060 kw. and has done preliminary work at hydro sites which it owns capable of producing, when developed, in excess of 51,000 kw.; and the capacity of its Watauga steam plant is capable of being enlarged. In the year ending July 31, 1937, the company served 8,642 customers, of which 2,304 were classified as rural customers, and in 1936, exclusive of sales to other utilities, sold 24,548,569 kwh., of which 11,049,650 kwh., or 45%, represented sales to industrial customers. The company has issued and outstanding \$2,669,500 in bonds, 6,000 shares of \$100 par value preferred stock entitled to an annual \$6 cumulative dividend, 5,105 shares of no par value preferred stock entitled to a \$7 annual cumulative dividend, and 15,000 shares of no par common stock, all of which were issued with the approval of the Railroad & Public Utilities Commission of Tennessee; and it has 125 employees. [Undisputed.]

24. Installed capacity is not a measure of the dependable capacity available for electric service. In the case of hydroelectric plants the limiting factor is the water available and not the amount of machinery installed. Of the dependable steam and hydro capacity in a low-water year a reserve is required to take care of various contingencies. [Undisputed.]

25. Complainants, and each of them, are subject to a special tax to which taxpayers generally are not subject, the tax being upon electrical energy sold for domestic and commercial consumption, in an amount equal to 3% of the price for which complainants sell the same, which is imposed by section 616 of the Federal Revenue Act of 1932, as amended. Complainants also severally pay large sums of money in the form of general taxes to the Federal Government, including Social Security taxes and taxes for unemployment relief imposed by sections 211 to 219 inclusive of the National Industrial Recovery Act. Complain-

FINDINGS OF FACT OF TRIAL COURT

ants severally are subject to and pay special and general taxes levied upon privately owned utilities by the several States and their political subdivisions in which complainants severally carry on business or own property.

Following is a table of the taxes paid by each of the complainant companies, with the exception of Kentucky-Tennessee Light & Power Company, for the year 1936, with an estimate of the taxes to be paid by each company for the year 1937. The taxes paid by complainants for the year 1936, exclusive of Kentucky-Tennessee Light & Power Company, averaged in excess of 12.7% of complainants' gross revenue, and for the year 1937, exclusive of Kentucky-Tennessee Light & Power Company, it is estimated that such taxes will be in excess of 14.4% of the total gross revenues of the companies.

Name of Company	1936	1937 (Est.)
The Tennessee Electric Power Company....	\$2,278,880.60	\$2,613,895.00
Franklin Power & Light Company.....	5,681.77
Memphis Power & Light Company.....	1,071,794.82	1,321,527.00
Southern Tennessee Power Company.....	5,896.77	5,953.00
Birmingham Electric Company.....	828,953.47	1,009,329.00
Mississippi Power Company.....	396,286.26	437,891.00
Appalachian Electric Power Company.....	2,817,013.07	3,069,047.97
Carolina Power & Light Company.....	1,607,877.58	2,035,440.00
Tennessee Public Service Company.....	471,335.33	590,733.00
Holston River Electric Company.....	5,414.47	5,611.00
Alabama Power Company.....	2,380,556.45	3,126,400.50
Kentucky & West Virginia Power Company, Inc.	344,104.06	350,919.03
Kingsport Utilities, Incorporated.....	59,697.46	85,437.89
West Tennessee Power & Light Company...	119,670.44	140,122.88
Mississippi Power & Light Company.....	738,463.61	918,832.00
East Tennessee Light & Power Company....	87,431.38	105,687.57
Tennessee Eastern Electric Company.....	130,419.90	190,390.40
	<hr/> \$13,349,477.44	<hr/> \$16,007,217.24
		[Undisputed.]

FINDINGS OF FACT OF TRIAL COURT

26. The rates and services of each of the complainant companies in the States of Alabama, Tennessee, Kentucky, Virginia, Georgia, West Virginia, North Carolina, and South Carolina are regulated by State commissions in the respective States. There is no State commission in Mississippi. The rates and services of the complainant companies in that State are regulated by municipalities within their corporate limits. [Undisputed.]

27. The rates charged by the several complainant companies in the States of Alabama, Tennessee, Georgia, Virginia, North Carolina, and South Carolina are uniform for the different classes of service throughout their respective operating territories. As between the complainant companies operating within a State there is no requirement of uniformity of rates. [Undisputed.]

28. The respective complainants have been issued franchises, licenses, or easements by most but not all of the municipalities and by most but not all of the counties in which they respectively operate electric facilities. Said franchises, licenses, or easements vary in original term and in unexpired term from a few months to more than 50 years, and many are unlimited in term. Most of the said franchises, licenses, or easements purport to be nonexclusive. Most of said franchises, licenses, or easements grant rights not limited within the respective municipalities or counties, but some are limited to particular streets or highways or to portions of the respective counties or municipalities. Some of the franchises, licenses, or easements purport to grant the right to construct and occupy the streets and highways with electrical facilities; some of said franchises, licenses, or easements purport to grant, for the purpose of engaging in the business of selling and distributing electricity, the right to occupy the streets and highways; and some of said franchises, licenses, or easements purport to grant the right to occupy the streets and highways with electrical facilities and to engage in the business

FINDINGS OF FACT OF TRIAL COURT

of selling and distributing electricity within the respective municipalities and counties. The validity of one of the municipal franchises, licenses, or easements claimed by complainants is now being contested in a State court by the municipality concerned. [Undisputed.]

STATUS OF PROJECTS OF THE TENNESSEE VALLEY
AUTHORITY

29. On October 3, 1933, TVA began the construction of Norris Dam and power plant on the Clinch River, a tributary of the Tennessee River, located 79.8 miles above its mouth, and completed such construction in March 1936, at a total cost of \$36,310,370, and began generating power in July 1936. The dam is 265 feet high; 1,872 feet in length; has a normal reservoir area of 34,200 acres; a reservoir shore line of 705 miles; and has an installed generating capacity of 100,800 kw. [Undisputed.]

30. On November 30, 1933, TVA began construction of Wheeler Dam and power plant located 15.5 miles above Wilson Dam on the Tennessee River, and construction was completed in November 1936, at a total cost of \$35,317,964, exclusive of the cost of the lock built by the War Department, at a cost of \$1,939,693. Wheeler Dam began to generate power in November 1936. The Corps of Engineers in 1932 proposed to construct this dam with a lift of 15 feet as an integral part of the low-dam navigation plan. The estimated cost of said dam in its ultimate stage will be \$42,817,964, exclusive of the lock built by the War Department. The dam is 72 feet in height; 6,335 feet in length; has a normal reservoir area of 64,300 acres; a reservoir shore line of 1,063 miles; has an initial installed generating capacity of 128,000 kw. and an ultimate generating capacity of 256,000 kw. [Undisputed.]

31. In March 1935 TVA began construction of the Pickwick Landing Dam and power plant located on the Tennessee River 52.7 miles below Wilson Dam and 100 miles

FINDINGS OF FACT OF TRIAL COURT

east of Memphis, Tennessee, and the construction will be completed in June 1938, at an initial cost of \$33,199,497 and estimated ultimate cost of \$42,431,497. The dam will be 110 feet in height; 7,715 feet in length; have a normal reservoir area of 41,600 acres; a reservoir shore line of 496 miles; an initial installed generating capacity of 72,000 kw. and an ultimate generating capacity of 216,000 kw. [Undisputed.]

32. On December 4, 1935, TVA began the construction of Gunterville Dam and power plant located on the Tennessee River above Wheeler Dam, near Gunterville, Alabama, and construction is estimated to be completed in December 1938, at an estimated initial cost of \$34,123,660 and an estimated ultimate cost of \$38,524,860. The dam will be 89 feet in height; 4,000 feet in length; have a normal reservoir area of 63,300 acres; a reservoir shore line of 660 miles, with an initial installed generating capacity of 50,000 kw. and an ultimate generating capacity of 100,000 kw. [Undisputed.]

33. On January 13, 1936, TVA began construction of Chickamauga Dam and power plant on the Tennessee River about 6 miles upstream from Chattanooga, Tennessee, and it is estimated that construction will be completed in December 1939, at an initial cost of \$40,435,645 and an estimated ultimate cost of \$45,333,645. The dam will be 104 feet high; 6,025 feet long; have a normal reservoir area of 32,000 acres; a reservoir shore line of 502 miles; an initial installed generating capacity of 50,000 kw. and an ultimate generating capacity of 100,000 kw. [Undisputed.]

34. On July 15, 1936, TVA began construction of Fowler Bend Dam and power project located on the Hiwassee River in North Carolina about 75.8 miles above the confluence of said river with the Tennessee River, and it is estimated that construction will be completed in October 1940, at an initial cost of \$17,296,061, and an estimated

FINDINGS OF FACT OF TRIAL COURT

ultimate cost of \$22,491,561. The dam will be 292 feet high; 1,250 feet long; have a normal reservoir area of 6,240 acres; 150 miles of reservoir shore line; and an ultimate generating capacity of 80,000 kw. [Undisputed.]

35. TVA has announced its intention to construct Watts Bar Dam and power plant on the Tennessee River, and Congress has allocated in its appropriations specific funds for preliminary investigation of a site which has been selected and which is located approximately 530 miles above the mouth of said river. Preliminary work has been done, and construction is scheduled to begin in the near future. The estimated initial cost of the dam and power plant is \$29,200,000, and the estimated ultimate cost is \$39,800,000. The dam will be 2,900 feet long and have a normal reservoir area of 42,600 acres and will have an ultimate installed generating capacity of 150,000 kw. [Undisputed.]

36. TVA has announced its intention to construct Coulter Shoals Dam and power project on the Tennessee River, and Congress has allocated in its appropriations specific funds for preliminary investigation of a site which has been tentatively selected approximately 30 miles below Knoxville, at which site some preliminary work has been done. The dam will be 2,070 feet long and will have a normal reservoir area of 11,900 acres, and the estimated initial cost of such dam and power plant is \$25,000,000, and the estimated ultimate cost is \$30,000,000. The ultimate installed generating capacity will be 60,000 kw. [Undisputed.]

37. TVA has announced its intention to construct the Gilbertsville Dam and power plant on the Tennessee River in Kentucky 22.5 miles above the mouth of said river, and Congress has allocated in its appropriations specific funds for preliminary investigation of a site. Preliminary work has been done at the dam site, and construction is scheduled to begin within the near future. The dam will be 150 feet in height; 8,300 feet in length; have a normal reservoir

FINDINGS OF FACT OF TRIAL COURT

area of 160,000 acres; and have an ultimate generating capacity of 192,000 kw. Its estimated initial cost is \$95,000,000, and the estimated ultimate cost is \$112,000,000. [Undisputed.]

38. The Tennessee Valley Authority has constructed or has under construction or has under investigation for construction a series of high dams and reservoirs, 7 on the main stream of the Tennessee River and 2 on principal tributaries of the Tennessee: the Clinch and the Hiwassee Rivers. [Bowman, r. 1690-1725; see def. exs. 36-38, 40, 44, 49, 50 in volume entitled *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. exs. 39, 41-43, 45-48, 51, 52, r. 4064-4074.]

39. These dams, when completed, will provide a continuous 9-foot navigable channel with adequate overdepths for boats of 9-foot draft over the entire distance from the mouth of the Tennessee at Paducah, Kentucky, to Knoxville, Tennessee, a distance of approximately 650 miles [Barker, r. 1949, 1951; Watkins, r. 1557; Putnam, r. 1189; see def. ex. 98 in *Reproductions of Certain Original Exhibits Submitted by Appellees*]; will substantially alleviate the destructive floods in the Tennessee and Mississippi Valleys [Clemens, r. 1650, 1651; Kimball, r. 1837-1839; Floyd, r. 1890-1891; Watkins, r. 1546]; and will also create a substantial amount of water power [Wessenauer, r. 2175-2180; Watkins, r. 1545; def. ex. 139, r. 4186].

40. Beginning at the mouth of the Tennessee River at Paducah, Kentucky, and extending upstream, the dams under control of the Authority already constructed or under construction or active investigation for construction are as follows [Bowman, r. 1691-1696; see def. exs. 36, 37 in *Reproductions of Certain Original Exhibits Submitted by Appellees*]:

Gilbertsville Dam, which is located in Kentucky 22.7 miles from the mouth of the river, and on which preliminary investigations by the Authority are in progress.

FINDINGS OF FACT OF TRIAL COURT

[Bowman, r. 1696-1701; see def. ex. 38 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 39, r. 4064.]

Pickwick Landing Dam, which is located in Tennessee 206.7 miles from the mouth of the river and which is under construction by the Authority and almost completed. [Bowman, r. 1704-1705; see def. ex. 40 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 42, r. 4066.]

Wilson Dam, which is located at Muscle Shoals, Alabama, 259.4 miles from the mouth of the river, which was constructed by the United States Army Engineers and transferred to the Authority under the Tennessee Valley Authority Act and which is now in operation. [Bowman, r. 1693.]

Wheeler Dam, which is located in Alabama 15.5 miles above Wilson Dam and 274.9 miles from the mouth of the river, and construction of which was commenced by the United States Army Engineers, completed by the Tennessee Valley Authority, and which is now in operation. [Bowman, r. 1705-1708; see def. ex. 40 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 43, r. 4067.]

Guntersville Dam, which is located near Guntersville, Alabama, 349 miles from the mouth of the river and which is under construction by the Authority. [Bowman, r. 1709, 1710; see def. ex. 44 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 45A, r. 4069.]

Chickamauga Dam, which is located near Chattanooga, Tennessee, 471 miles from the mouth of the river and which is under construction by the Authority. [Bowman, r. 1709-1716; see def. ex. 44 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 46A, r. 4071.]

Watts Bar Dam, which is located in Tennessee 529.9 miles from the mouth of the river and on which preliminary investigations by the Authority are in progress. [Bowman, r. 1716-1719; see def. ex. 47, r. 4072.]

FINDINGS OF FACT OF TRIAL COURT

Coulter Shoals Dam, which is located in Tennessee 602 miles from the mouth of the river and on which preliminary investigations by the Authority are in progress. [Bowman, r. 1719-1720; see def. ex. 48, r. 4073.]

The dams constructed or under construction on tributaries are as follows:

Norris Dam, located in Tennessee on the Clinch River 79.8 miles from the mouth of that river and 647.5 miles from the mouth of the Tennessee River, constructed by the Authority, now completed and in operation. [Bowman, r. 1720-1724; see def. exs. 49, 50 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 51, r. 4074.]

Hiwassee Dam, located in North Carolina on the Hiwassee River 75.8 miles from the mouth of that river and 560.3 miles from the mouth of the Tennessee River, under construction by the Authority. [Bowman, r. 1722-1725; see def. ex. 50 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 52, r. 4074.]

The Tennessee Valley Authority has also recommended to the Congress the future construction of a third tributary project at the Fontana Dam site in North Carolina on the Little Tennessee River, but the Congress has appropriated no funds for this purpose, and neither construction nor preliminary investigation or other work is in progress on this project. [Bowman, r. 1694.]

41. Each of the dam projects of the Authority is located on a site at or near the site selected by the United States Army Engineers in their comprehensive report on the Tennessee River system, set forth in House Document No. 328, Seventy-first Congress, second session. [Watkins, r. 1548; Bowman, r. 1760-1761; Barker, r. 1949; Crane, r. 1285.] The projects so described in that report were designed primarily for navigation and flood control. [Watkins, r. 1547-1548.] Prior to the passage of the Tennessee Valley Authority Act the United States Army Engineers

FINDINGS OF FACT OF TRIAL COURT

in fact had plans for a high dam at the site of the present Wheeler Dam. Their design made provision for intakes for the later installation of power facilities. Prior to the passage of the Tennessee Valley Authority Act they had commenced construction of the lock for this project. The lock and dam as completed by the Authority are substantially similar in design to the project as designed by the Army Engineers. [Bowman, r. 1762-1763, 1765-1766; Putnam, r. 1172-1173; Crane, r. 1285.]

42. Each of the projects of the Authority has all elements of design reasonably required for navigation and flood control in accordance with accepted engineering standards. [Watkins, r. 1545, 1548; Bowman, r. 2238-2243; cf. Bowman, r. 1695-1696, 1720-1722.] Each of the projects has been designed to provide storage capacity for a slack-water pool behind the dam and a substantial additional storage capacity above the slackwater pool level. [Bowman, r. 2237; see def. exs. 38, 40, 44, 50 in *Reproductions of Certain Original Exhibits Submitted by Appellees.*] Each of the main-stream projects is equipped with a lock prescribed and designed by the Corps of Engineers, with space for an additional parallel lock when commerce warrants. [Barker, r. 1951, 1968; def. exs. 111, 112, r. 4110, 4111; Bowman, r. 2243.] The locks which are being installed are of sufficient size and capacity to accommodate adequately the traffic which may be expected in the reasonably near future. [Putnam, r. 1173; def. ex. 112, r. 4111.] To provide effective means for flood control and stream-flow regulations, each of the projects is equipped with large spillway gates, and in addition, the tributary projects are equipped with sluiceways of large capacity. [Bowman, r. 2239-2241; Sargent, r. 1676.] At each of the projects facilities have been provided or construction and design are such that facilities may be provided for the generation of power. [Bowman, r. 1696, 1721, 1722; comp. ex. 328 (original) pp. 57-58; def. ex. 141, r. 4188.] Each of the projects

FINDINGS OF FACT OF TRIAL COURT

of the Authority can be operated to secure substantial benefits in the improvement of navigation and the control of destructive floods, and consistently therewith, the production of electric energy. [Watkins, r. 1545, 1548; Woodward, r. 1780-1789, 1820-1821, and in connection therewith Wessenauer, r. 2173-2175, and def. ex. 139, r. 4186; Bowman, r. 1738-1739, 1742; Sargent, r. 1679-1681, *cf.* r. 1687-1689; Clemens, r. 1654, 1655; *cf.* Crane, r. 1286.]

43. The following tables set forth the principal engineering features of the projects of the Authority, Lock and Dam No. 1 constructed by and under the control of the War Department, and the privately owned Hales Bar Dam: [The information shown in these tables appears in def. exs. 39, 42, 43, 45, 45A, 46, 46A, 47, 48, 51, 52, 53, 54, r. 4064, 4066-4073, 4074-4076; def. ex. 152, r. 4263; def. exs. 36, 38, 40, 44, 50 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 153 (original); comp. ex. 116 (original); comp. ex. 328 (original); except for the lock sill elevations, which appear in Barker, r. 2014, 2015, 2016.]

FINDINGS OF FACT OF TRIAL COURT

(1) Project	(2) Miles above River Mouth	(3) Drainage Area Sq. Mi.	(4) Length of Res. Miles	(5) Elev. Top of Gates	(6) Normal Pool Level	(7) Low Pool Level		(9) Total to Top of Gates	(10) Reservoir Volumes acre-feet		(11) Flood Control
						at Dam	at Upstr.		Low Water Regulation	High Water Control	
Gilbertsville.....	22.7	40,000	184.0	375	359	350	354	6,150,000	750,000	4,600,000	
Pickwick.....	206.7	32,870	52.7	418	413	408	408	1,032,000	191,000	416,000	
Lock & Dam No. 1.....	256.8			416							
Wilson.....	259.4	30,800	15.5	505.8	505.1	503	503	600,000	43,000	43,000	
Wheeler.....	274.9	29,600	74.1	556	555	548	550	1,100,000	280,000	440,000	
Guntersville.....	349.0	24,300	82.1	595	594	591	593	951,000	62,000	242,000	
Hales Bar.....	431.1	21,800	39.9	629.2	626.2			100,000			
Chickamauga.....	471.0	20,800	58.9	685.0	682.0	673.5	675	639,000	196,000	325,000	
Watts Bar.....	529.9	17,460	72.1	745	740	736	736	1,132,000	140,000	337,000	
Caulter Shoals.....	602.0	9,800	50.0	815	810	805	805	370,000	60,000	140,000	
Norris.....	79.8		71-Cl.								
		2,950	52-Po.	1034	1020	955		2,567,000	1,500,000	2,020,000	
Hiwassee.....	75.8										
	576.3	977		1526	1526	1415		435,000	362,000	362,000	
Total.....									4,034,000	8,925,000	
Tributary.....									1,862,000	2,382,000	
Main River.....									2,172,000	6,543,000	

Col. (7) is the lowest elevation to which the reservoir will usually be drawn for flood control and, at the main-stream dams is the usual allowable drawdown with normal wet season flow to give the elevation shown in col. (8) at the next dam upstream, resulting in a minimum navigable depth of 9 feet, with 2 feet over-depth. This elevation is sometimes also referred to as "minimum draw-down elevation" or "minimum navigation level" or "maximum drawdown."

Col. (10) is the difference in the volumes for elevations in columns (6) and (8).

Col. (11) is the difference in the volumes for elevations in columns (5) and (7).

Normal pool level in column (6) is an arbitrary level generally defining the maximum level to which the pool will be raised in low-water season except for possibly a temporary rise of one foot above this caused by malarial control fluctuations.

[The information shown in this table appears in def. exs. 39, 42, 43, 45, 45A, 46, 46A, 47, 48, 51, 52, 53, 54, r. 4064, 4066-4073, 4074-4076; def. ex. 152, r. 4263; def. exs. 36, 38, 40, 44, 50 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; comp. ex. 328 (original).]

FINDINGS OF FACT OF TRIAL COURT

Project	Elev. Spillway Great	Number & Size Spillway Gates	Spillway Disch. Capacity c. f. s.	Elev. Lower Lock Sill	Elev. Upper Lock Sill	Size of Lock Chamber Feet	Power Units Installed or Authorized	Ultimate Power Units Provided For
Gilbertville.....	330	24-45 x 40	850,000			110 x 600		6-32,000 KW
Pickwick.....	378	22-40 x 40	820,000	342.2	398.0	110 x 600	2-36,000 KW	6-36,000 KW
Lock & Dam No. 1.....	416			394.1	406.6	60 x 300		
Wilson.....	487	58-18 x 38	629,000			60 x 300	4-20,000 KW	4-20,000 KW*
						60 x 300	4-26,000 KW	14-26,000 KW*
Wheeler.....	541	60-15 x 40	687,000	491.0	534.0	60 x 360	4-32,000 KW	8-32,000 KW
Guntersville.....	545	18-40 x 40	625,000	538.0	578.0	60 x 360	3-24,000 KW	4-28,000 KW
Hales Bar.....	626.2	Flash boards 3 ft. high				60 x 287		
Chickamauga.....	655	20-40 x 40	600,000	618.2	663.0	60 x 360	3-27,000 KW	4-27,000 KW
Watts Bar.....	720	21-25 x 40				60 x 360		4-37,500 KW
Coulter Shoals.....	790	20-25 x 40				60 x 360		3-20,000 KW
Norris.....	1020	3-14 x 100	205,000				2-50,000 KW	2-50,000 KW
Hiwassee.....	1503.5	7-23 x 32	130,000				1-60,000 KW	2-60,000 KW

*Provision for the ultimate installation of all these units was made by the United States Army Engineers in Wilson Dam as originally constructed. The dam as completed by them included the completed power house, with 8 generating units installed and provision made for installation of the additional 10 generating units.

[The information shown in this table appears in def. exs. 39, 42, 43, 45, 46, 47, 48, 51, 52, r. 4064, 4066-4068, 4070, 4072-4075; def. ex. 153 (original); comp. ex. 116 (original).]

FINDINGS OF FACT OF TRIAL COURT

44. The engineers of the Authority in responsible charge have determined, on the basis of a study of all available records, upon a method of operation for the Authority's projects which in their opinion is the most effective method of operation for the improvement of navigation and the control of destructive floods on the Tennessee and Mississippi River Valleys. [Woodward, r. 1775; def. ex. 41, r. 4065; r. 1777-1790, 1820-1821; Kimball, r. 1850-1851, 1880-1881.] This is the method of operation which in their opinion is best adapted for the combined purposes of improvement of navigation and the control of destructive floods without reduction in the effectiveness of the Authority's projects for either navigation or flood control. [Woodward, r. 1777-1790, 1820-1821; Kimball, r. 1850-1851, 1880-1881.] The general method of operation is set forth in the report of the Board of Directors of the Tennessee Valley Authority entitled, "The Unified Development of the Tennessee River System," pages 18-19, which is complainants' exhibit 328 in this case. Some details of operation have been changed in the past, and according to the Authority's engineers in responsible charge, other changes may be necessary in the future as further investigations and experience may require. [Woodward, r. 1779, 1780, 1781, 1783, 1784, 1792; Wessenauer, r. 2173.]

45. The engineers of the Tennessee Valley Authority in responsible charge operate the projects of the Authority substantially as follows: The reservoir levels of the main-stream dams below Chattanooga are held somewhat above low pool level during the flood season and drawn down to or below such level in advance of a flood; those above Chattanooga are to be held at about low pool level during flood season. [Woodward, r. 1783-1784; Kimball, r. 1850-1851; Wessenauer, r. 2175.] As the flood season draws to a close, about the beginning of April, reservoir levels on the main stream are allowed to rise. [Woodward, r. 1784; Kimball, r. 1851.] The reservoir levels of the tributary projects

FINDINGS OF FACT OF TRIAL COURT

are maintained at about low pool level at the beginning of the flood season, and a substantial portion of the storage capacity below so-called normal pool level is gradually filled during and after the flood season. A sufficient capacity is held available at the close of the flood season to control the largest run-off that may be expected at that time. [Woodward, r. 1784-1785, 1786-1790; Kimball, r. 1851.] The water stored in the reservoirs on the tributaries and the main stream is released during the low-water season to augment the low-water flow. [Woodward, r. 1780-1782; Barker, r. 1954-1956; def. ex. 142, r. 4189; Karr, r. 2195-2199.]

46. The general method of operation set forth in finding 45 conforms to the method of operation for navigation and for flood control contemplated in House Document No. 328 and House Document No. 259 [see comp. ex. 105 (original) pp. 63-64 (par. 31), p. 71 (par. 41), p. 74 (par. 46), p. 78 (par. 52), p. 95 (par. 77); cf. Clemens, r. 1658-1660, in regard to def. ex. 32 (original)] and is reasonably calculated to provide most effectively for the improvement of navigation and the control of destructive floods in the Tennessee and Mississippi River Valleys without reduction in the effectiveness of the Authority's projects for either flood control or navigation [Woodward, r. 1779-1780, 1788-1790, 1821; Kimball, r. 1850-1851, 1880-1881; Clemens, r. 1658-1660, 1665-1666, cf. r. 1654-1655, 1658-1659; Floyd, r. 1894; Sargent, r. 1678-1681, 1687; Bowman, r. 1738-1739, 1742; Barker, r. 1958; Watkins, r. 1543-1545, 1548].

47. While dams and reservoirs of limited capacity designed for local flood protection only should, according to some engineering opinion, be kept empty in advance of floods and emptied immediately after floods, those principles govern the design and method of operation of dams and reservoirs established for local protection alone and do not apply to the projects of the Tennessee Valley Authority, which are designed and operated for the protection of points

FINDINGS OF FACT OF TRIAL COURT

on the Tennessee, the lower Ohio, and the lower Mississippi, and for navigation, as well as for local flood protection. [Watkins, r. 1543-1544, 1633-1634; Kimball, r. 1880-1881; Woodward, r. 1786-1787, 1790; Kelly, r. 1386-1387; Floyd, r. 1894.]

STATUS OF NAVIGATION ON THE TENNESSEE RIVER

48. The Tennessee River, a navigable river approximately 652 miles long, is formed by the junction of the French Broad River and the Holston River at Knoxville, Tennessee, and enters the Ohio River near Paducah, Kentucky. In its unimproved state there were numerous obstacles to commercial navigation, including shoals and bars, steep slopes, high velocities, and floods in many months of the year, and inadequate depths in a great proportion of the river. [Watkins, r. 1549-1550; Barker, r. 1942-1943; see def. exs. 93, 97 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. ex. 94, r. 4100.]

49. The problem of improving navigation on the Tennessee River has been a matter of national concern for more than a hundred years. From 1852 to 1933 Congress authorized and made appropriations for numerous navigation surveys and navigation projects covering all portions of the Tennessee River and certain of its tributaries, at a total expenditure of approximately \$18,000,000, exclusive of Wilson Dam. [See def. ex. 95 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Barker, r. 1943.]

50. Prior to the passage of the Tennessee Valley Authority Act the Tennessee River was not adequately improved for modern commercial navigation except for short stretches behind the Government-owned Dam No. 1 and Wilson Dam, and the privately owned Hales Bar Dam. The controlling depth of the river at that time ranged from

FINDINGS OF FACT OF TRIAL COURT

4½ feet in the lower part of the river to 1 foot in the upper section. [See def. ex. 97 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Barker, r. 1949; Watkins, r. 1549-1550; Putnam, r. 1152.]

51. The Tennessee River, as a tributary of the Ohio River, is interconnected with the inland waterway system of the Mississippi River, which connects the Gulf and the Great Lakes and taps the territory of about 15 States, including many important traffic-producing industrial, commercial, and agricultural centers, and extends as far east as Pittsburgh, Pennsylvania, as far west as Kansas City, Missouri, and as far north as Minneapolis and St. Paul, Minnesota. [See def. exs. 116, 118, 123 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Alldredge, r. 2044-2045.] Interstate railroads and highways interconnect with the waterway at numerous points, permitting joint land and water transportation. [See def. ex. 66 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.] There are varied and substantial agricultural, mineral, and forest resources located in the Tennessee Valley within reach of the waterway. [Alldredge, r. 2046-2051; def. exs. 120, 121, 122 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; comp. ex. 105 (original) pp. 512-514.] About 18.2% of the population of the United States, based on the 1930 census, is located within 25 miles of the banks of this interconnected waterway. [Alldredge, r. 2045-2046; see def. ex. 119 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.] This inland waterway system includes 5,700 miles of improved waterway of 9-foot depth or over, an additional 3,200 miles of 6- to 9-foot depth, and an additional 1,000 miles of 4- to 6-foot depth. [See def. exs. 116, 118 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.]

52. The dams constructed, under construction, or authorized for construction or investigation by the Tennes-

FINDINGS OF FACT OF TRIAL COURT

see Valley Authority will provide a navigation channel throughout the length of the Tennessee River substantially superior to that which could be provided by any alternative method of navigation improvement. [Watkins, r. 1536-1539, 1541-1542, 1547-1548, 1556, 1581-1582, 1620; Barker, r. 1958, 1958-1973; Brodie, r. 2024-2031; comp. ex. 105 (original) pp. 12-13 (see appendix A at r. 4272); def. exs. 104, 109, 110 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. exs. 106, 107 (original); def. exs. 105, 108, 115, r. 4108, 4109, 4133.] They will also provide substantial navigation improvement on a number of the tributaries of the Tennessee River [Barker, r. 1963-1964; def. ex. 109 in *Reproductions of Certain Original Exhibits Submitted by Appellees*] and will provide an increased water supply, which will substantially improve navigation on the Mississippi River in the low-water season [Barker, r. 1955-1956; Watkins, r. 1545, 1634; Brodie, r. 2027-2029].

53. Each of the dams constructed, under construction, or authorized for construction or investigation by the Tennessee Valley Authority will result in a substantial improvement for navigation. [Barker, r. 1949, 1950-1951, 1955-1956; def. ex. 98 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Watkins, r. 1539, 1545, 1557; Putnam, r. 1183-1185; Bowman, r. 1693-1694, 1699, 1704-1706, 1709-1710; def. exs. 47, 48, r. 4072, 4073; def. exs. 38, 40, 44 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.]

54. The high-dam projects of the Authority will provide a navigation improvement substantially superior to that which could be provided by the system of low dams set forth in House Document No. 328. [See references in support of fdg. 52.] The superiority of high dams for navigation was recognized by the Board of Engineers for Rivers and Harbors in House Document No. 328. [Comp. ex. 105 (original) pp. 11-13 (see appendix A at r. 4272);

FINDINGS OF FACT OF TRIAL COURT

Watkins, r. 1581-1582, 1620.] The Authority's projects will provide superior channel depths and widths [Watkins, r. 1536-1537; Barker, r. 1958, 1974; def. ex. 108, r. 4109; r. 1961, 1968-1970], substantially fewer lockages [Watkins, r. 1536; Barker, r. 1958, 1959 (see def. ex. 105, r. 4108); def. ex. 115, r. 4133; def. ex. 104 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Putnam, r. 1177], substantially less current velocities [Barker, r. 1958, 1959-1961; def. ex. 106 (original); Watkins, r. 1537], pool fluctuations [Barker, r. 1955, 1958, 1965-1966; def. ex. 110 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Watkins, r. 1537], and interruptions from floods [Watkins, r. 1537; Barker, r. 1955, 1961]. The elimination of lockages will substantially reduce the time consumed in lockages [Brodie, r. 2024-2025; Barker, r. 1958, 1959 (see def. ex. 105, r. 4108); def. ex. 115, r. 4133; Watkins, r. 1536]; the superiority of channel depths and reduction of current velocities will substantially increase the speed of movement and reduce the amount of motive power required [Barker, r. 1958, 1959-1963, 1968-1970; def. ex. 108, r. 4109; def. ex. 106 (original); def. ex. 115, r. 4133; def. ex. 107 (original); Watkins, r. 1536-1538, 1556; Brodie, r. 2025, 2026-2027]; and the wider and longer pools of the high dams are preferred by the navigator to the narrow, crooked pools of the low dams [Brodie, r. 2027; Barker, r. 1967, 1970; Watkins, r. 1537-1538]. The reduction in pool fluctuations will greatly encourage the development of terminal facilities necessary to the development of commercial navigation. [Brodie, r. 2025-2026; Barker, r. 1965-1966; Watkins, r. 1537.] The advantages of the Authority's projects in these respects will insure a substantially greater efficiency of the navigation channel, substantially greater dependability of service, and may reasonably be expected to attract a substantially greater volume of traffic on the improved river. [Watkins, r. 1556; Brodie, r. 2029-2031.] The high dams will also provide substantial im-

FINDINGS OF FACT OF TRIAL COURT

provement of navigation on the tributaries which would not be provided by the low-dam projects. [Barker, r. 1963; def. ex. 109 in *Reproductions of Certain Original Exhibits Submitted by Appellees.*] The advantages of high dams cannot be accurately measured in monetary terms. [Brodie, r. 2037-2038; Putnam, r. 1182, 1183.] The boats and barges which are now in general use on the interconnected inland waterways of the Mississippi River system will be able to navigate the Tennessee River where improved by the projects of the Authority without change of design or extent of loading. [Brodie, r. 2023-2024; Barker, r. 1976-1977.]

55. On other tributaries of the Mississippi the United States Army Engineers are now replacing certain low dams with high dams, with provision for the development of power [Putnam, r. 1174-1175; Watkins, r. 1538; Barker, r. 1974], and at the time of the creation of the Tennessee Valley Authority they were engaged in the construction of a lock for a high navigation dam at the Wheeler Dam site, with provision in their design for the development of power [Bowman, r. 1762-1763, 1765-1766; Putnam, r. 1172-1173; Crane, r. 1285].

56. The improved navigation channel provided by the projects of the Authority will cause a very substantial increase and development in waterway traffic between the Tennessee Valley region and other regions of the United States connected by water, rail, and highway. [Watkins, r. 1550-1556; Alldredge, r. 2053-2056; def. ex. 126, r. 4136; r. 2063-2064; Barker, r. 1977; Brodie, r. 2029.] Despite the numerous obstacles in the past to commercial navigation on the Tennessee River, the traffic on the river over the last 40 years has been between 1,000,000 and 2,000,000 tons annually, but due to lack of adequate depths the traffic has consisted largely of short hauls. [Def. ex. 96 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; comp. ex. 105 (original) pp. 205-233; Watkins, r. 1549-1550; Barker, r. 1944-1946.] It was estimated by the Army

FINDINGS OF FACT OF TRIAL COURT

Engineers in House Document No. 328 that there would be an increase of traffic of approximately 7,000,000 tons per annum at a saving of about \$10,000,000 annually (or a saving of approximately 25% of the present freight charges; if the Tennessee River were adequately improved for commercial navigation. [Watkins, r. 1552, 1550-1556; comp. ex. 105 (original) p. 497.] Subsequent studies since the creation of the Tennessee Valley Authority have confirmed the reasonableness and conservative character of this estimate. [Def. ex. 126, r. 4136; Alldredge, r. 2053-2054, 2055-2061, 2063-2064.] On the basis of the growth of traffic experienced on the comparable improved waterways of the interconnected Mississippi River system it is reasonable to expect an ever increasing growth in the volume of traffic on the river. [Alldredge, r. 2061-2064; def. ex. 130 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Watkins, r. 1549, 1554; def. ex. 30 (original).]

57. The value of the improvement to navigation provided by the projects of the Authority is not limited to the reduction in the cost of transportation to shippers, but includes substantial intangible values, such as the stimulation of the growth of industry and business and the promotion of the general prosperity of the region within the influence of the improved waterway. [Putnam, r. 1182-1183; Watkins, r. 1553-1554; Alldredge, r. 2063.]

THE FLOOD PROBLEM ON THE TENNESSEE
AND MISSISSIPPI RIVERS

58. The recurrent great floods on the Tennessee and Mississippi Rivers have long presented a grave flood menace of national importance. Thousands of miles of interstate railways and highways, and 20,000,000 acres of the richest cotton lands in the United States, the products of which are normally marketed in interstate and foreign commerce, lie within the flood plain of the Mississippi Valley. Lo-

FINDINGS OF FACT OF TRIAL COURT

cated in the path of Mississippi floods also are the important commercial cities of Memphis, Cairo, and New Orleans, and other smaller communities, in which are located large cotton warehousing, compressing, and processing plants, and woodworking plants, engaged in the production, processing, and distribution of goods normally marketed in interstate and foreign commerce. [Okey, r. 1905-1913, 1920-1922; def. ex. 91 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.] The city of Chattanooga, which is the principal point of danger on the Tennessee River, is an important center of interstate railways and highways and manufacturing plants, and is a principal center for the distribution throughout the southeastern region of commodities produced in other States. [Kimball, r. 1824; see def. ex. 66 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Alldredge, r. 2063; Kurtz, r. 1194-1198; comp. ex. 349, r. 3084B.]

59. The great floods of the past on the Tennessee and Mississippi Rivers have caused and unless controlled in the future will cause complete interruption of transportation on the Mississippi and Tennessee Rivers, and complete interruption of interstate commerce on the railroads and highways, as well as interruption in the production, manufacture, and distribution of products normally marketed in interstate and foreign commerce, and substantial damage to the facilities and properties employed for these purposes. [Clemens, r. 1636-1642; Okey, r. 1905-1913, 1920-1922; Kimball, r. 1824-1834; def. exs. 72, 73, 81 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. exs. 74-80, r. 4084-4096; Kurtz, r. 1194-1198; comp. ex. 349, r. 3084B; Watkins, r. 1537, 1556-1557; comp. ex. 105 (original) pp. 16-17, 730-734 (see appendix A, r. 4272-4273); Barker, r. 1955.]

60. For the most effective control of destructive floods in the Tennessee River basin, particularly in the critical area at Chattanooga, Tennessee, it is desirable to provide

FINDINGS OF FACT OF TRIAL COURT

high dams with controlled storage (such as the projects of the Authority) on the main stream of the Tennessee and on the principal tributaries above Chattanooga, including the Clinch and Hiwassee Rivers, in order to supplement local protective works. [Kimball, r. 1834-1836, 1850-1852, 1867-1869; def. exs. 68, 82, r. 4080, 4097; Watkins, r. 1539-1540, 1544-1546; comp. ex. 105 (original) p. 17 (see appendix A at r. 4273); def. ex. 152, r. 4263; Floyd, r. 1891.]

61. The Ohio River and its tributaries, including the Tennessee River, are the largest contributor to all Mississippi floods, contributing from 52% to 90% of the floods between Cairo, Illinois, and Helena, Arkansas. The Tennessee River has always made a substantial contribution to all Mississippi floods. [Clemens, r. 1637, 1649; Kimball, r. 1825-1826; def. exs. 69, 70, r. 4081, 4082.]

62. The existing flood-protection works on the lower Mississippi River, consisting of levees supplemented by floodways and cut-offs, are inadequate to pass a flood such as is now estimated to be reasonably probable in the future without disastrous overtopping of the existing levees. [Kelly, r. 1379-1380; Clemens, r. 1645-1646, 1650; Okey, r. 1914.] Even in lesser floods the existing projects provide adequate protection for only 60% of the alluvial valley [Okey, r. 1914], and then only with the use of the floodways, the use of which it is desirable to eliminate whenever possible [Okey, r. 1931-1932; Clemens, r. 1645, 1650; def. ex. 32 (original) p. 8]. The levees on the lower Mississippi have reached the practical limits of height. [Kelly, r. 1380; Clemens, r. 1646; Okey, r. 1932-1933.] Any additional protection against lower-Mississippi floods must be found in part in the provision of reservoirs on the tributaries of the Mississippi to reduce their contribution to Mississippi floods. [Kelly, r. 1379-1382; Clemens, r. 1646-1650.] For the most effective flood-control use, reservoirs should be located close to Cairo, which is at the junction of the Ohio

FINDINGS OF FACT OF TRIAL COURT

and the Mississippi Rivers. [Clemens, r. 1649-1650; Kelly, r. 1381-1382; def. ex. 32 (original) p. 18 (par. 22).]

63. The Tennessee River, being the largest tributary of the Ohio and closer to Cairo and the lower Mississippi than any other major tributary of the Ohio system, is one of the best rivers for reservoirs for flood control on the lower Mississippi. [Clemens, r. 1650; Floyd, r. 1890-1891.] For the most effective reduction of the contribution of the Tennessee River system to Mississippi floods it is necessary to provide high dams with controlled storage (such as the projects of the Authority) on the main stream and storage dams on the tributaries, including the Clinch and Hiwassee Rivers. [Clemens, r. 1651-1652, 1654-1655; Watkins, r. 1557, 1539-1540, 1544-1547; Kimball, r. 1834, 1850-1851; Floyd, r. 1891.]

64. The season of major floods in the Tennessee River basin is limited to the period from approximately the middle of December to about the first of April. [Woodward, r. 1786-1787; Kurtz, r. 1235; Kimball, r. 1828.] No major flood of record has occurred in the Tennessee basin outside this period; floods occurring outside this flood season are of limited volume and duration, and are local in effect. [Woodward, r. 1787; Kurtz, r. 1235; Bowman, r. 1738; Justin, r. 2388.] The season of major floods on the lower Ohio and lower Mississippi lasts about a month later than the flood season on the Tennessee [Clemens, r. 1665; Kelly, r. 1386-1387], but as the end of the Tennessee flood season approaches, the need for storage capacity to control the contribution of the Tennessee to Ohio and Mississippi floods diminishes [Kimball, r. 1850-1851; Woodward, r. 1786-1788].

65. Each of the projects of the Authority is of substantial value for the reduction of destructive flood heights in the Tennessee and Mississippi River basins. [Def. ex. 151, r. 4263; Bowman, r. 1725, 1751, 1752; Woodward, r. 1784-1785, 1820-1821, 1786-1788, 1807-1808; Kimball, r. 1835-1836, 1838-1839, 1852; def. exs. 82, 152, r. 4097, 4263; Okey, r.

FINDINGS OF FACT OF TRIAL COURT

1914-1919, 1922; Clemens, r. 1650-1651, 1656; Watkins, r. 1539-1540, 1545-1546; Floyd, r. 1890-1891; Kurtz, r. 1235; Kelly, r. 1384-1385.]

66. The controlled-storage projects of the Authority are the only types of engineering works on the Tennessee River system which will afford effective flood control in both the Tennessee and Mississippi River basins. [Clemens, r. 1651-1652, 1654-1655; Kimball, r. 1845, 1850; Watkins, r. 1547.] Automatic, uncontrolled detention reservoirs are of uncertain value for local Tennessee flood control [Kimball, r. 1842-1850; Watkins, r. 1547, 1583-1590] and would be of no value for the control of floods on the lower Mississippi [Kurtz, r. 1222-1223; Clemens, r. 1654-1655; Kelly, r. 1372; Watkins, r. 1547; Kimball, r. 1845]. The so-called natural valley storage in the Tennessee River basin is the space occupied by the flood itself, and the retarding effect of such uncontrolled valley storage may increase the danger of Mississippi floods. [Clemens, r. 1652-1653; Kimball, r. 1840-1841; Kelly, r. 1388-1389; Watkins, r. 1540; def. ex. 152, r. 4263.] The low dams set forth in House Document No. 328 would be of no value in the control of destructive floods either in the Tennessee or Mississippi River basins, as was recognized in House Document No. 328. [Clemens, r. 1652; comp. ex. 105 (original) p. 64 (see appendix A at r. 4274); Watkins, r. 1547.]

67. Pursuant to congressional authorization a comprehensive survey of the Tennessee River system with respect to navigation, flood control, and conservation of power resources was undertaken by the Corps of Engineers of the War Department and completed in 1930. This report is contained in House Document No. 328, Seventy-first Congress, second session. [Comp. ex. 105 (original).] The recommendations contained in this report were adopted by Congress in the Rivers and Harbors Act of 1930 and provided for the creation of a 9-foot navigation channel throughout the length of the Tennessee River by a series of

FINDINGS OF FACT OF TRIAL COURT

movable low dams to be constructed by the Federal Government or a series of high dams to be constructed by private interests in cooperation with the Federal Government. [Comp. ex. 105 (original) p. 5; Watkins, r. 1535-1536, 1547-1548, 1581-1582.] The preliminary estimate of cost of the low dams was approximately \$75,000,000. In 1935 the Mississippi River Commission, in a comprehensive report on reservoir projects for Mississippi flood control, set forth in House Document No. 259, Seventy-fourth Congress, first session, recommended that the Federal Government adopt a policy of encouraging the construction of reservoirs on the tributaries of the Mississippi River for increased flood protection on the lower Mississippi. [Def. ex. 32 (original) p. 33; Clemens, r. 1647-1650, 1671-1672, 1656-1657; Kelly, r. 1384-1386.] In April 1937 the Chief of Engineers, in a report set forth in Committee Document No. 1, Seventy-fifth Congress, first session, recommended the construction by the Federal Government of storage reservoirs on the tributaries of the Mississippi as essential for the control of floods on the lower Mississippi. [Kelly, r. 1380-1382; Okey, r. 1932-1933.] Neither at the time of the enactment of the Tennessee Valley Authority Act nor since has there been any reasonable prospect that a comprehensive development of the Tennessee River and its tributaries for the combined purpose of navigation and flood control in the Tennessee and Mississippi River basins could be obtained in any other way except by the construction of high dams by the United States Government or some agency thereof. [Longley, r. 974; Watkins, r. 1540-1542, 1558.]

COMBINED BENEFITS TO NAVIGATION AND FLOOD CONTROL FROM
THE TENNESSEE VALLEY AUTHORITY PROJECTS

68. The projects of the Authority will permit the maintenance at all times of the 9-foot channel on the main stream of the Tennessee with sufficient overdepths to ac-

FINDINGS OF FACT OF TRIAL COURT

commodate boats of 9-foot draft. [Barker, r. 1951, 1949; def. ex. 98 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Watkins, r. 1557; Putnam, r. 1189.] The tributary projects on the Clinch and Hiwassee Rivers will also permit the maintenance of slackwater pools in the lower portions of the reservoirs, which is necessary on the Clinch, a navigable tributary, in order to preserve existing navigation and to avoid foreclosing future improvement for navigation [Watkins, r. 1542; Barker, r. 1956-1957], and is valuable on both tributaries in order to preserve the life of the projects by affording capacity for the deposit of silt [Barker, r. 1955; Watkins, r. 1543]. The projects of the Authority will also provide substantial storage space above slackwater pool level to control in whole or in part the run-off from the drainage area above the dams during the flood season. [Bowman, r. 2237; Watkins, r. 1631-1632, 1545, 1539.] Such projects are the only engineering works which can provide effective flood control in conjunction with the continuous maintenance of the 9-foot channel for navigation. [Watkins, r. 1539, 1544, 1546-1547, 1557; Clemens, r. 1651-1652, 1654, 1655; Bowman, r. 1759; Barker, r. 1977-1978; Kimball, r. 1852, 1834-1835, 1838-1850; Kurtz, r. 1219.]

69. The tributary projects of the Authority, by reducing flood flows and increasing low flows, will substantially increase the effectiveness of the high dams on the main stream for the reduction of flood heights on the Mississippi and Tennessee Rivers in combination with the maintenance of a 9-foot navigation channel. [Clemens, r. 1651-1652; Watkins, r. 1545-1547; Floyd, r. 1891, 1892-1894; Kimball, r. 1838, 1850.] These tributary reservoirs will also serve to increase materially the navigable depths in the unimproved portions of the main stream for navigation, will substantially increase the navigable depths in the upper ends of the navigation pools created by the main-stream projects, and will substantially increase the navigable

FINDINGS OF FACT OF TRIAL COURT

depths on the lower Mississippi River, which increases will be of material benefit to navigation. [Watkins, r. 1545; Barker, r. 1954-1956.]

70. The low-dam plan recommended in House Document No. 328 as an alternative navigation project would have no flood-control value. [Comp. ex. 105 (original) p. 64 (see appendix A at r. 4274); Watkins, r. 1537, 1547; Clemens, r. 1652.] The low-dam plan in conjunction with detention reservoirs on the tributaries might together accomplish navigation improvement and flood control on the Tennessee River, but this combination would contribute nothing to flood control in the Mississippi River [Kurtz, r. 1222-1223], might aggravate flood conditions there [Clemens, r. 1654-1655; Kimball, r. 1845, 1843-1850; def. exs. 89, 90 in *Reproductions of Certain Original Exhibits Submitted by Appellees*], and would provide navigation improvement inferior to that provided by the projects of the Authority [Watkins, r. 1536-1539, 1556; Brodie, r. 2024-2031; Barker, r. 1958, 1958-1973; comp. ex. 105 (original) pp. 12-13 (see appendix A at r. 4272); def. exs. 106, 107 (original); def. exs. 104, 109, 110 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; def. exs. 105, 108, 111, 115, r. 4108, 4109, 4110, 4133].

71. Upon the completion of the construction of the Pickwick Landing project and the Gunter'sville project, these two projects, in conjunction with the already-completed Wheeler Dam and the previously existing Wilson Dam, will provide a 9-foot channel from Pickwick Landing to the vicinity of Chattanooga, a distance of approximately 257 miles. [Barker, r. 1950-1951; def. ex. 98 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.] The completed Norris Dam is being operated to provide a navigation channel of 7-foot minimum depth in the 207-mile stretch between Pickwick Landing and the mouth of the Tennessee River. [Barker, r. 1950-1951, 1954-1955, cf. r. 1994.] This 7-foot depth below Pickwick will be in-

FINDINGS OF FACT OF TRIAL COURT

creased to 71½ feet upon completion of Hiwassee. [Barker, r. 1951.] These projects together will provide a commercially feasible navigation channel between Chattanooga, Tennessee, and the inland waterway system. [Barker, r. 1951.] For the larger part of each year there will be a through navigation channel of 9-foot depth from Chattanooga to the mouth of the river [Barker, r. 1951, 1994], and even prior to construction of Gilbertsville, by means of a moderate amount of dredging and releases from other projects of the Authority, it is feasible to provide a permanent 9-foot channel below Piekwick Dam [Putnam, r. 2312-2313]. Until the Gilbertsville project is constructed, which may not be for many years, it is necessary to store a substantial amount of water in the tributary reservoirs during the high-water season to provide the low-water releases required for this improvement to navigation. [Barker, r. 1992-1993.]

72. The increase of the low-water flow by means of the storage of water during the high-water season at Norris Dam and the release of such water during the low-water period has increased and will substantially increase the continuous water power available at Wilson Dam and will increase the value of Wilson Dam for all purposes. [Bowman, r. 1738, 2251; Thomas, r. 2106-2107; Wessenauer, r. 2181-2182; def. ex. 139, r. 4186; Woodward, r. 1815; Kurtz, r. 1217.]

73. Since completion, Norris Dam has been successfully operated to improve substantially the navigation channel of the Tennessee River between Wilson Dam and its mouth [Barker, r. 1954-1955; Woodward, r. 1780-1782], to prevent a probable flood at Chattanooga in the year 1936, and to hold off from the peak of the Mississippi River flood of 1937 approximately 28,000 c.f.s., the Norris Dam storing the entire flow of the Clinch River for 6 weeks during the 1937 Mississippi flood [Woodward, r. 1788, 1807-1810;

FINDINGS OF FACT OF TRIAL COURT

Kimball, r. 1881-1882; *cf.* def. ex. 82, r. 4097; Kimball, r. 1835].

74. The operation of Norris Dam since its completion has also increased the amount of water power available in the low-flow season at the existing Government-owned Wilson Dam [def. ex. 142, r. 4189, 4191, columns 5 and 6; Karr, r. 2198; Bowman, r. 2251], but the operation of holding and releasing waters has been directed primarily to navigation and flood control and the protection of construction works below [Woodward, r. 1779-1780, 1784, 1805; Kimball, r. 1881-1882; Karr, r. 2197; def. ex. 41, r. 4065; Woodward, r. 1775]. The same is true of Wheeler Dam, which has been operated since its completion in 1936 to maintain a 9-foot navigation channel 74 miles to the site of the Guntersville project and to reduce flood waters and protect construction works at the Pickwick project. [Woodward, r. 1783, 1780, 1808; Bowman, r. 1706; Barker, r. 1971-1972.] Approximately 85% of the water released from Norris during the year 1937 was of benefit only to navigation and flood control, and was not required or useful for production of power. [Karr, r. 2198; def. ex. 142, r. 4189, 4190, column 3, 4191, column 6.] The temporary storage and releases of water for power-peaking purposes have been at all times subordinated to the requirements of navigation and flood control, and have never been permitted to interfere with or affect the continued maintenance of the stream flow required for navigation or the storage required for flood control. [Woodward, r. 1779-1780, 1784, 1805; Karr, r. 2197-2199; Barker, r. 1955.] Temporary abnormal conditions, such as the necessity of operating for the protection of the Authority's construction works, have materially affected the operation of the Norris and Wheeler projects. [Woodward, r. 1780, 1808, 1820; Kimball, r. 1881-1882.]

75. The projects of the Authority are designed primarily for the improvement of navigation and the control

FINDINGS OF FACT OF TRIAL COURT

of destructive flood waters. [Bowman, r. 2237-2243; cf. def. ex. 37 in *Reproductions of Certain Original Exhibits Submitted by Appellees*, and Bowman, r. 1695-1696; cf. def. ex. 49 in *Reproductions of Certain Original Exhibits Submitted by Appellees*, and Bowman, r. 1720-1721; r. 1760-1761, 1757-1758; Watkins, r. 1547-1548, 1631-1632.] The sequence of development has been determined according to the requirements of navigation [. . .¹]. [Bowman, r. 1758, 2244-2247; Barker, r. 1950-1951.]

76. The projects of the Authority which are completed and in operation have been and are operated primarily for navigation and flood control, and the responsible officers of the Authority charged with the operation of such projects are required by instructions from the board of directors to operate them primarily for such purposes. [Def. ex. 41, r. 4065; Woodward, r. 1775, 1779-1780, 1805; Karr, r. 2193-2194, 2197, 2199; Barker, r. 1955; Kimball, r. 1881-1882; comp. exs. 923, 924, 957, r. 3955, 3961, 4004.] These instructions have been un[i]formly obeyed. [Woodward, r. 1775, 1779-1780, 1805, 1820; Karr, r. 2193-2194, 2197, 2199.]

77. The approximate length and maximum width of the pools upon the Tennessee River created by the TVA unified plan will be [def. exs. 55-64 in *Reproductions of Certain Original Exhibits Submitted by Appellants*]:

Dams	Length of Pool	Maximum Width
Gilbertsville	184.2 miles	6 miles
Pickwick Landing	50.1 miles	1½ miles
Wheeler	74.1 miles	3½ miles
Guntersville	82.1 miles	3 miles
Chickamauga	59.9 miles	2½ miles
Watts Bar	73.4 miles	1½ miles
Coulter Shoals	48.8 miles	½ mile

78. Commerce upon the Tennessee River between 1927 and 1934 averaged 1,750,000 tons per year, for which the

¹ The remainder of this finding is incorrectly printed in the record (r. 618).

FINDINGS OF FACT OF TRIAL COURT

average haul was 23 miles, which consisted 82% in the transportation of sand and gravel, 9% in the transportation of various forest products, and 9% in the transportation of iron, steel, lime and cement. Since the creation of TVA Government traffic has constituted a substantial portion of the total traffic, amounting to 52% in 1935 and 54% in 1936 of the total traffic. The average annual value of such cargoes was \$11,000,000, on which the average annual savings of water transportation over land transportation was \$2,000,000. There have been no significant or substantial movements of commerce upon the tributaries of the Tennessee River. [Putnam, r. 1161-1163; Barker, r. 1985-1986, 1983-1984, 2005-2006; Alldredge, r. 2071; def. ex. 153 (original) pp. 938, 1064.]

79. There is no advantage accruing to navigation upon the Tennessee River by shutting off the flow from Norris Dam entirely on Sundays and Labor Days as was done during August and September 1936. This method of operation is entirely consistent with the operation of dams primarily for navigation and flood control. [Barker, r. 1994-1995.]

80. It would not be practical or feasible to construct a belt coal conveyor to pass coal from barges on the reservoir at Norris Dam to other barges below Norris Dam to be transported upon the Tennessee River. [Barker, r. 1995-1999; comp. ex. 933 in *Reproductions of Certain Original Exhibits Submitted by Appellants.*]

81. Practically all of the property damage from floods in the Tennessee Valley occurs at and above Chattanooga, Tennessee. [Kurtz, r. 1197; comp. ex. 349, r. 3084B; Watkins, r. 1582; comp. ex. 105 (original) p. 734.]

82. Flood damages in the Tennessee River below Chattanooga are relatively small in amount and, while including some damage to highways and railroads (easily eliminated by relocation), consist largely of damages to farm crops re-

FINDINGS OF FACT OF TRIAL COURT

sulting from the overflow of rich valley lands. The construction of the TVA unified plan will overflow permanently thousands of acres more of such valley farm land than is now occasionally overflowed by floods. At the present time such occasional overflows generally take place before the crop season and their results are beneficial to the land. [Kurtz, r. 1197, 1209, 1195, 1205; comp. exs. 353, 355, r. 3086, 3088; comp. ex. 105 (original) p. 734; def. ex. 153 (original) pp. 919, 947; comp. ex. 116 (original) p. 403.]

83. Less than 8% of the total population in towns and cities upon the Tennessee River and its tributaries, which in 1930 was 341,522, is below Chattanooga. [Kurtz, r. 1195-1196; comp. ex. 348, r. 3084A.]

84. The estimated average annual damage from all floods to all classes of property on the Tennessee River and its tributaries is \$1,441,208, of which \$1,356,053 occurs at and above Chattanooga. [Comp. ex. 349, r. 3084B; Watkins, r. 1582.]

85. A flood-control program to achieve the maximum practical protection upon the Tennessee River and its tributaries should be directed primarily for protection at and above Chattanooga. [Kurtz, r. 1197.]

86. The greatest flood to be anticipated upon the Tennessee River and its tributaries would result in a stage at Knoxville of 68.3 feet, with a maximum flow of approximately 620,000 second-feet; in a stage at Loudon of 71.5 feet, with a maximum flow of approximately 605,000 second-feet; in a stage at Chattanooga of 73 feet, with a maximum flow of approximately 680,000 second-feet. The previous maximum recorded stage was at Knoxville 44.4 feet; at Loudon 47.0 feet; and at Chattanooga 57.9 feet. [Kurtz, r. 1200; comp. ex. 350 in *Reproductions of Certain Original Exhibits Submitted by Appellants.*]

FINDINGS OF FACT OF TRIAL COURT

THE CONSERVATION OF WATER POWER

87. The development of firm power by hydroelectric project is controlled by the amount of power that can be produced by the project both at extreme low water and extreme high water. [Kurtz, r. 1211.]

88. The load factor of a public utility system is the ratio of the average demand for power on that system expressed in kw. to the maximum demand for power on that system, and in the Tennessee basin area is about 60%. [Kurtz, r. 1211.]

89. At 100% load factor the firm capacity of Wilson Dam, excluding United States Nitrate Steam Plant No. 2, before the capacity of Wilson Dam was increased by the TVA dams upon the Tennessee River and its tributaries, was approximately 28,000 kw., and the firm energy was 242,600,000 kwh. per year. At 60% load factor 145,600,000 kwh. per year of firm energy would be produced by Wilson Dam power plant. The operation of the tributary reservoirs under the TVA high-dam program solely for regulation of the river will increase the firm-power capacity of Wilson Dam at 60% load factor by 151,300 kw. per year and the firm energy by 795,200,000 kwh. per year. [Kurtz, r. 1217; Putnam, r. 1167.]

90. At 100% load factor the operation of the tributary reservoirs solely for regulation of the river would increase the firm-power capacity of Wilson Dam by 79,700 kw. and the firm energy by 698,200,000 kwh. per year. [Kurtz, r. 1217; Bowman, r. 2251, 1738.]

91. The operation of Norris Dam in June of 1936, by increasing the low-water flow of the Tennessee River and by the generation of power, was sufficient to double the firm-power capacity of the TVA system as it existed at that time. [Woodward, r. 1815-1816; comp. ex. 909 in *Reproductions of Certain Original Exhibits Submitted by Appel-*

FINDINGS OF FACT OF TRIAL COURT

lants; comp. ex. 116 (original) p. 515 (see excerpt at r. 2726A).]

92. The tributary reservoirs under the TVA unified plan will greatly increase the firm power produced by the projects upon the Tennessee River. [Kelly, r. 1375.]

93. The projects of the Tennessee Valley Authority are the only type of dams which will conserve the water resources of the Tennessee River system for navigation, Tennessee and Mississippi flood control, water power, and other beneficial uses. [Watkins, r. 1545, 1557, 1547, 1631-1632; Bowman, r. 2235-2236; Kurtz, r. 1213, 1219, 1227-1228.] The available sites on the Tennessee River system for the construction of dams and reservoirs are strictly limited in number, and those available for flood control coincide in many instances with those required for the regulation of the river for other purposes. The utilization of such sites exclusively for local flood protection would preclude the development of the water resources for any other purposes. The construction of low dams on the main stream of the Tennessee River for navigation would waste the resources of the river for any other purpose. It would be physically impossible to provide the high dams on the main stream necessary for the development of flood control and power without the wasteful removal or duplication of such low dams. [Bowman, r. 2235-2237; Watkins, r. 1547; comp. ex. 105 (original) pp. 12-13, 21, 64 (see appendix A at r. 4272, 4274).]

94. The construction and operation of the projects of the Authority for navigation and flood control will provide a head for power by concentrating the fall of the river at certain points on the Tennessee River system and will substantially augment the minimum flow in low-water season. [Watkins, r. 1545.] Water power is a function of head and stream flow. [Wessenauer, r. 2189-2190.] The amount of continuous power is determined by the available head and the minimum flow in low-water season. Continu-

FINDINGS OF FACT OF TRIAL COURT

ous power is power available 24 hours a day, every day of the year, in every year. [Wessenauer, r. 2179-2180.] When operated for the improvement of navigation and the control of destructive floods the dams constructed, under construction, or under investigation for construction by the Tennessee Valley Authority will provide, in addition to the benefits to navigation and flood control set forth in previous findings and without reduction in the effectiveness of these projects for navigation and flood control, a large amount of continuous power. [Wessenauer, r. 2175; Watkins, r. 1545; Clemens, r. 1654, 1658; Sargent, r. 1681; Bowman, r. 1738-1741; Woodward, r. 1788-1790.]

The firm-power capacity, as distinguished from the continuous power, is the maximum demand which the system can reliably supply, having regard to the energy available, the generating units installed, the load factor, and other characteristics of the system. [Wessenauer, r. 2179-2180.] With the complete generating units which have already been installed or are under contract for installation at Norris, Wheeler, Gunterville, Wilson and Pickwick Landing Dams [def. ex. 140, r. 4187], the dams constructed or under construction by the Tennessee Valley Authority will have a firm-power capacity of 395,000 kw. [def. ex. 141, r. 4188; Wessenauer, r. 2175, 2175-2180]. Together with the additional generating units at these dams and at Hiwassee and Chickamauga Dams which have been authorized by the Board of the Tennessee Valley Authority and for which appropriations have either been made or requested, the dams constructed or under construction by the Tennessee Valley Authority will have a firm-power capacity of 570,000 kw. [See def. ex. 141, r. 4188; Wessenauer, r. 2175, 2175-2180.]

FINDINGS OF FACT OF TRIAL COURT

STOCK OWNERSHIP, BUSINESS, FRANCHISES AND
PROPERTIES OF COMPLAINANTS

95. The National Power & Light Company, 46.56% of whose outstanding voting stock is owned by the Electric Bond & Share Company, owns the following percentages of the total outstanding voting stock of the following complainants [def. ex. 135, r. 4171]:

Birmingham Electric Company.....	100.00%
Carolina Power & Light Company.....	93.53%
Holston River Electric Company.....	100.00%
Memphis Power & Light Company.....	86.75%
Tennessee Public Service Company.....	99.31%
West Tennessee Power & Light Company.....	100.00%

96. The Electric Power & Light Corporation, 46.20% of whose outstanding voting stock is owned by the Electric Bond & Share Company, owns 94.03% of the voting stock of the complainant Mississippi Power & Light Company. [Def. ex. 135, r. 4171.]

97. The American Gas & Electric Company, 17.51% of whose outstanding voting stock is owned by the Electric Bond & Share Company, owns 100% of the voting stock of the complainant Appalachian Electric Power Company, which in turn owns 100% of the voting stock of complainants Kingsport Utilities, Inc., and Kentucky & West Virginia Power Company. [Def. ex. 135, r. 4171.]

98. During the past 5 years the Electric Bond & Share Company has voted the following approximate percentages of the total number of shares of voting stock represented at stockholders' meetings:

National Power & Light Company.....	62%
Electric Power & Light Corporation.....	77%
American Gas & Electric Company.....	25%

Throughout the history of these companies there has been no instance in which there has been any contest over proxies or in which any interests hostile to the managements have

FINDINGS OF FACT OF TRIAL COURT

organized opposition to the programs or policies of the respective managements or to the election of directors voted for by proxies designated by such managements. [Def. ex. 135, r. 4171.]

99. The Commonwealth & Southern Corporation owns 91.40% of the outstanding voting securities of the Alabama Power Company; 100% of the outstanding voting securities of the Georgia Power Company, Mississippi Power Company, and Southern Tennessee Power Company; and 64.43% of the outstanding securities of The Tennessee Electric Power Company. [Def. ex. 135, r. 4171.]

100. All of the common and preferred stocks of the complainant East Tennessee Light & Power Company are owned by the Cities Service Power & Light Company. All of the common stock of the complainant Tennessee Eastern Electric Company is owned by the East Tennessee Light & Power Company. [Ide, r. 857-858.]

101. All of the complainants are engaged in the business of generating, transmitting, distributing, and selling electricity as public utility companies, except that the Birmingham Electric Company [Pevear, r. 805], the Tennessee Public Service Company [Lamar, r. 800], the Holston River Electric Company [Canaday, r. 803], the Franklin Power & Light Company [Howard, r. 797], the Mississippi Power Company [Sweatt, r. 787], and the Mississippi Power & Light Company [Sargent, r. 884] purchase practically all of their electrical requirements, and except that the Southern Tennessee Power Company neither generates nor sells power but is engaged exclusively in the business of transmitting electric energy [Nelson, r. 861].

102. The complainant Mississippi Power Company owns no franchises or electrical facilities in 10 counties in northeastern Mississippi. The properties in these counties were sold to the Tennessee Valley Authority under the contract of January 4, 1934, and the area is the ceded area referred to in that contract. [Sweatt, r. 790-793; def. ex.

FINDINGS OF FACT OF TRIAL COURT

143A, r. 4195, 4196; cf. comp. ex. 12 in *Reproductions of Certain Original Exhibits Submitted by Appellants.*]

103. The complainant Alabama Power Company does not own any electrical facilities in 6 counties in northwestern Alabama except 9 municipal distribution systems and a high-tension 110-kv. line which crosses the territory. [Barry, r. 870, 871; Henkle, r. 1055; cf. def. ex. 143A, r. 4195, 4196; cf. comp. ex. 326 in *Reproductions of Certain Original Exhibits Submitted by Appellants.*] Under the contract of January 4, 1934, the complainant Alabama Power Company transferred to the Authority all the high-voltage transmission lines leading from Wilson Dam to the municipalities in the area with the exception of a single line leading to Decatur, the substations, and all rural lines in the area. [Barry, r. 870, 871; Henkle, r. 1055.]

104. Section 5 in the contract of January 4, 1934, provides that:

Alabama Company covenants and agrees to convey its urban distribution systems in the above named counties in Alabama, said distribution systems being listed in Exhibit B, to the respective municipalities in or adjacent to which such systems are located, together with all franchises, contract rights, and going business thereto appertaining, when it has agreed with any such municipality on the price to be paid for the same. Alabama Company agrees to make every reasonable effort to come to an early agreement with said municipalities for such sales. In the event that any such municipality is unable to arrive at a satisfactory price after three months of bona fide negotiation with Alabama Company, or if for some other reason the sale of any such system cannot be consummated, Authority shall have the right to serve such municipality or municipalities irrespective of whether such municipalities have purchased the distribution systems from Alabama Company. [Def. ex. 143A, r. 4195 at 4198.]

FINDINGS OF FACT OF TRIAL COURT

105. A part of section 4 further provides with reference to the Alabama properties that:

Any conveyance of property shall include not only the physical property, easements and rights-of-way, but shall also include all machinery, equipment, tools and working supplies set forth in the respective exhibits, and all franchises, contracts and going business relating to the use of any of said properties, without extra charge. [Def. ex. 143A, r. 4195 at 4198.]

106. With a few minor exceptions (a few small industrial customers in the so-called ceded area in Alabama and approximately 3,000 employees on Government reservations and rural customers in the vicinity of Norris Dam and Wilson Dam), all of the Authority's sales are either at wholesale to municipalities, rural cooperatives, and utilities, or to very large industrial customers purchasing both firm and secondary power in large bulk lots for operations not previously served by any of the complainants. [Def. exs. 143, 147, r. 4192-4193, 4242-4243; Karr, r. 2199-2202.]

107. During the period of the contract of January 4 the Authority sold power under the first proviso of section 7 of the contract to the following municipalities:

Dayton, Tennessee.
Dickson, Tennessee.
Pulaski, Tennessee.
Amory, Mississippi.
Okolona, Mississippi.

[Karr r. 2203-2204; def. ex. 143A, r. 4199, 4200.]

108. Under the third proviso of section 7 of the contract of January 4 the Authority contracted to sell and has sold electricity in substantial amounts to the Meigs County Electric Membership Corporation, the Monroe County Electric Power Association, and a number of rural customers served directly by the Authority in Roane

FINDINGS OF FACT OF TRIAL COURT

County, Tennessee, near Norris Dam. [Karr, r. 2204; def. ex. 143A, r. 4199, 4200.]

109. Under the last proviso of section 7 of the contract of January 4 the Authority contracted to sell and has sold electricity in substantial amounts to Cullman County Electric Membership Corporation, Duck River Electric Membership Corporation, Middle Tennessee Electric Membership Corporation, North Georgia Electric Membership Corporation, Pickwick Electric Membership Corporation, and in Lincoln County, Tennessee. The total load of these customers during the period of the contract was within the 2,500-kw maximum amount stipulated in the said proviso. [Karr, r. 2205; def. ex. 143A, r. 4199, 4200.]

110. Under the interchange provision of the contract of January 4 the Alabama Power Company supplied power to the Authority for the construction of Guntersville Dam, and the Tennessee Electric Power Company supplied power to the Authority for the construction of Norris and Chickamauga Dams. [Karr, r. 2223.]

111. The Tennessee Valley Authority is not now constructing and has not authorized the construction of any transmission line, has not sold or authorized the sale of any electricity, and has not entered into or authorized any contracts for the sale of electricity in any part of the territory claimed by the complainants Franklin Power & Light Company [Howard, r. 798], Appalachian Electric Power Company [Argabrite, r. 834], Carolina Power & Light Company [Yoder, r. 824], Holston River Electric Company [Canaday, r. 804], Kingsport Utilities, Inc. [Argabrite, r. 834], Kentucky & West Virginia Power Company [Argabrite, r. 834], Tennessee Eastern Electric Company [Ide, r. 858], Birmingham Electric Company [Pevear, r. 807; cf. def. ex. 143, r. 4192], East Tennessee Power & Light Company [Ide, r. 858], and Mississippi Power & Light Company, except that it has constructed a transmission line at the expense of the War Department connecting the Author-

FINDINGS OF FACT OF TRIAL COURT

ity's lines to the site of Sardis Dam in the claimed territory of the Mississippi Power & Light Company. [Sargent, r. 887; *cf.* def. ex. 143, r. 4192.]

112. The complainant Southern Tennessee Power Company is engaged only as a transmission company transmitting electric energy from Wilson Dam to the Alabama-Tennessee line, thereby connecting Wilson Dam and the transmission system of The Tennessee Electric Power Company. It is not presently engaged either in the generation or distribution and sale of electric energy. [Nelson, r. 861.]

113. Adequacy of facilities means the availability in sufficient quantity of distribution, transmission, and generation facilities at all times to assure ability to take care of immediate loads and any reasonable expectant increase in load with a sufficient margin so as to assure the supplying of proper service. [Sporn, r. 1252.]

114. Prudent utility management requires that a utility shall provide enough surplus capacity to take care of its actual and potential demands in the period of time during which new facilities can be added and that too great a surplus, resulting in nonproductive facilities and higher operating costs, be avoided. [Sporn, r. 1252-1253; Moreland, r. 1459.]

115. The generating facilities of each of the following groups of companies are interconnected and integrated into a single coordinated system or power pool, and such facilities of each group are operated as a unit:

(a) The Appalachian Electric Power Company, Kentucky and West Virginia Power Company, and the Kingsport Utilities, Inc., are integrated into a single system [Sporn, r. 1253] and are also interconnected with a group of affiliated companies in Ohio, Indiana, and Michigan and with nonaffiliated companies in Tennessee and North Carolina [Sporn, r. 1254].

FINDINGS OF FACT OF TRIAL COURT

(b) The complainants Alabama Power Company, Mississippi Power Company, The Tennessee Electric Power Company and the noncomplainants Georgia Power Company, Gulf Power Company, and South Carolina Power Company together form the integrated system of Commonwealth & Southern Corporation in the South [Middlemiss, r. 1268-1269] and also have interconnections with the Carolina Power & Light Company, the Florida Power Corporation, the South Carolina Electric & Gas Company, the Duke Power Company, and the Aluminum Company of America [Middlemiss, r. 1269-1270].

(c) The Carolina Power & Light Company, the Tennessee Public Service Company, and the Holston River Electric Company. [Rankin, r. 1293.]

(d) The complainants Memphis Power & Light Company, West Tennessee Power & Light Company, Mississippi Power & Light Company and noncomplainants Louisiana Power & Light Company and Arkansas Power & Light Company. [Rankin, r. 1293.]

(e) The East Tennessee Light & Power Company and Tennessee Eastern Electric Company. [Ide, r. 854.]

116. None of the complainant companies has ever failed to meet the load requirements of their customers [Middlemiss, r. 1274; comp. ex. 372 in *Reproductions of Certain Original Exhibits Submitted by Appellants*; comp. ex. 375, r. 3139], nor have they ever refused additional business due to lack of facilities [Sporn, r. 1257].

117. The complainant companies serve the electric power requirements of substantially all industrial enterprises doing business in the territories served by them [Argabrite, r. 832-833; Ford, r. 809; Sargent, r. 886; Ostermueller, r. 990; Lamar, r. 802; Canaday, r. 803; Pevear, r. 805; Yoder, r. 821; Ide, r. 855; Stanley, r. 939; Street, r. 976-977; Barry, r. 876; Bonner, r. 1005-1006; Jacobs, r. 1015-1016; Perkins, r. 1020; Watson, r. 1026; Shacklett, r. 1029-

FINDINGS OF FACT OF TRIAL COURT

1030; Winkler, r. 1033-1034; Henkle, r. 1051-1052], with the following exceptions:

(a) Those industries now being served by TVA [Stanley, r. 955-956; Shacklett, r. 1031-1032];

(b) Those industries which require steam in processing operation and are thus able to produce their own power as a byproduct [Ford, r. 809; Argabrite, r. 832; Street, r. 977; Ostermueller, r. 990; Bonner, r. 1005; Jacobs, r. 1015-1016; Perkins, r. 1020; Watson, r. 1026; Shacklett, r. 1029-1030; Winkler, r. 1034; Henkle, r. 1051-1052];

(c) Those industries, such as sawmills and woodworking plants, which have waste fuel products and can produce power without fuel cost [Street, r. 977; Ostermueller, r. 990; Bonner, r. 1005-1006; Jacobs, r. 1015; Perkins, r. 1020; Shacklett, r. 1029-1030; Winkler, r. 1034; Henkle, r. 1052];

(d) Small and scattered enterprises, such as cotton gins, ice plants, and flour and feed mills, which operate seasonally and which depend upon steam or other mechanical power [Street, r. 977; Ostermueller, r. 990; Bonner, r. 1006; Jacobs, r. 1015; Perkins, r. 1020; Watson, r. 1026; Winkler, r. 1034; Henkle, r. 1052].

All of these businesses except those being served by TVA have their own power units, which would have to be abandoned in order to take central power service. [Ostermueller, r. 990; Bonner, r. 1006; Perkins, r. 1020; Watson, r. 1026; Winkler, r. 1034; Henkle, r. 1052.]

118. The complainant companies serve the electric power requirements of substantially all commercial enterprises doing business in the territory served by them, with the exception of a very few scattered rural stores which do not stay open at night. [Street, r. 977; Ostermueller, r. 990; Bonner, r. 1006; Jacobs, r. 1016; Perkins, r. 1021; Watson, r. 1026; Winkler, r. 1034; Henkle, r. 1052; Ford, r. 809-810;

FINDINGS OF FACT OF TRIAL COURT

Lamar, r. 802; Yoder, r. 821; Sargent, r. 886; Ide, r. 857; Argabrite, r. 832-833; Pevear, r. 805.]

119. The complainant companies are now serving, either directly or indirectly, substantially all of the domestic demand within the territory served by them accessible to existing company facilities. [Street, r. 977-978; Ostermueller, r. 990-991; Bonner, r. 1006-1007; Jacobs, r. 1016; Perkins, r. 1021; Watson, r. 1026-1027; Shacklett, r. 1029-1030; Winkler, r. 1034; Henkle, r. 1052-1053; Argabrite, r. 842; Sargent, r. 886; Lamar, r. 802; Canaday, r. 803; Pevear, r. 805; Ford, r. 809-810; Yoder, r. 821; Ide, r. 855.]

120. The wholesale rates of the Tennessee Valley Authority are substantially lower than the wholesale rates of any of the complainants. [R. 943 (conceded by counsel).]

121. The retail rates for every class of service prescribed by TVA and charged by the municipalities and cooperatives purchasing power from the Tennessee Valley Authority are substantially lower than the retail rates of any of the complainants. [R. 943-944 (conceded by counsel).]

122. The rates charged by the Tennessee Valley Authority in all classes of service, including rural customers, domestic customers, and commercial customers which it serves, are substantially lower than the rates for the same classes of service of any of the complainants. [R. 943-944 (conceded by counsel).]

123. The industrial rates charged by the Tennessee Valley Authority are substantially lower than the published rates of any of the complainants. [R. 946 (conceded by counsel).]

124. Tennessee Valley Authority has published these rates generally, and they are well known throughout the Tennessee Valley area. [R. 1130, 1134 (conceded by counsel).]

FINDINGS OF FACT OF TRIAL COURT

125. Substantial future damage to complainants will result from competition with TVA. This record does not establish that complainants, or any of them, will have their businesses destroyed by, or will become bankrupt because of, such competition. [See order regarding submitted findings of fact and conclusions of law, r. 566 at 568.]

POWER CUSTOMERS AND POWER CONTRACTS
OF THE AUTHORITY

126. The Authority as of December 15, 1937, had contracts to sell power to 9 municipalities located in the ceded area covered by the contract of January 4 with the complainants Alabama Power Company and Mississippi Power Company. Seven of these municipalities are located in the ceded area in Alabama. [Def. ex. 143, r. 4192-4193; cf. Karr, r. 2199-2200.]

127. As of December 15, 1937, the Authority had contracts for the sale of power with 7 rural cooperative corporations and 8 industrial customers located in the ceded area covered by the contract of January 4 with complainants Alabama Power Company and Mississippi Power Company. [Def. ex. 143, r. 4192-4193; cf. Karr, r. 2199-2200.]

128. The Authority has a contract to sell and is delivering power in bulk lots to the complainant Alabama Power Company on the low side of several substations acquired by the Authority under the January 4 contract, by means of transmission lines also acquired by the Authority under the contract, for service to several urban distribution systems of the company in the area covered by the contract. [Barry, r. 870; Henkle, r. 1055.]

129. In addition to the contracts for the sale of power in the ceded area, as of December 15, 1937, the Authority had contracts to sell power to 17 municipalities, 12 co-operatives, 3 industrial customers, and one utility company, and the requirements of the War Department for the

FINDINGS OF FACT OF TRIAL COURT

construction of Sardis Dam. [Def. ex. 143, r. 4192-4193; Karr, r. 2199-2200.]

130. The contracts with municipalities and cooperatives provide for the wholesale delivery of power in bulk lots at a substation at the city gates in the case of municipalities and at a substation or metering point near the location of their respective operations in the case of cooperatives, the substations and metering equipment to be owned by the Authority. [See def. ex. 143, r. 4192-4193, column 3; Karr, r. 2201; see sections entitled "Point of Delivery" in contracts reprinted in comp. ex. 117, r. 2729, 2730; comp. ex. 118, r. 2771, 2773; comp. ex. 119, r. 2846, 2848; comp. ex. 134, r. 2879, 2882; comp. exs. 135-145, r. 2885-2888; comp. ex. 196, r. 3004; comp. ex. 224, r. 3026.]

131. The contracts with municipalities and cooperatives provide that all lines and substations from the point of delivery and all electrical equipment except the metering equipment of the Authority located on the municipality's or cooperative's side of such point of delivery shall be furnished and maintained by the municipality or cooperative. [See "Terms and Conditions" section of contracts usually entitled "Corporation's Lines and Equipment—Ownership" as on pp. 144, 162, 176, 188, 207, 219, 235, 247, 259 of def. ex. 154, sent up in original form; or see comp. ex. 118, r. 2771, 2786; comp. exs. 119-134, 135-145, 196, 224, r. 2846-2885, 2885-2889, 3004, 3026.]

132. Rural cooperative associations have been organized in the States of Alabama, Tennessee, Georgia, and Mississippi for the purposes of distributing TVA power. Seven such corporations have been organized in Alabama [comp. exs. 267-274, r. 3040-3049], 14 in Tennessee [r. 1520-1521], one in Georgia [comp. exs. 381, 382, r. 3155, 3156], and 11 in Mississippi [comp. exs. 943-953, r. 3996-4002]. All such cooperative associations have been incorporated since May 18, 1933, and have procured franchises in 10 counties in Alabama and 45 counties in Tennessee for the

FINDINGS OF FACT OF TRIAL COURT

purposes of erecting, constructing, operating, and maintaining lines, and distributing and selling electricity therein. [Comp. exs. 214-223, r. 3022-3026; comp. exs. 275-319, r. 3049-3065.]

133. TVA has financed for municipalities and cooperatives a large number of rural distribution lines [def. ex. 136, r. 4175, 4184] and has also loaned funds to cooperatives with which to purchase urban distribution systems, including the distribution systems in the towns of Bruce, Caledonia, and Smithville, Mississippi, and Gibson, Tennessee [comp. exs. 181, 592, 595, r. 2950, 3433, 3441]. The indebtedness owed to TVA on this account amounted to \$1,424,665.70 as of June 30, 1936 [comp. ex. 116 (original) p. 486], and this indebtedness had increased by June 30, 1937, to the sum of \$1,582,412.66 [def. ex. 154 (original) p. 110]. TVA intends to continue this policy. [Def. ex. 153 (original) p. 978.]

134. The TVA in some instances has constructed distribution systems in advance of the organization of any cooperatives. [Comp. exs. 530-531, 534, 535, 553, r. 3360-3361, 3363, 3364, 3374; Watson, r. 2397-2398.] In a number of other instances TVA has constructed lines pending their purchase by the cooperatives, agreeing to collect membership fees, to connect service to prospective customers, to render and collect bills, and perform other like services, including the furnishing of clerical and stenographic service. [Comp. exs. 176, 177, 178, 179, 180, r. 2938, 2941, 2943, 2947; comp. exs. 588, 596, 599, 601, 610, 626, r. 3430, 3451, 3457, 3459, 3476.] In a number of instances TVA has transferred to cooperatives distribution lines and other equipment and has financed and constructed rural lines to be paid for over a 20-year period, and in some instances an unlimited period, at 3½% interest, out of the income from the property. [Comp. exs. 577, 583, 584, 587, 595, r. 3395, 3426, 3427, 3430, 3441; comp. ex. 170, r. 2916; comp. exs. 607, 622, r. 3459, 3468; comp. exs. 117, 181, 175,

FINDINGS OF FACT OF TRIAL COURT

173, r. 2729, 2950, 2937, 2926; comp. exs. 618, 605, 609, r. 3461, 3458, 3459; comp. exs. 593, 592, r. 3439, 3433; comp. ex. 163, r. 2909.]

135. The municipalities purchasing power at wholesale from the Authority own and operate their own distribution systems and sell the power which they purchase from the Authority to the ultimate consumers, and the contracts with municipalities not yet purchasing power contemplate the same type of operation. [See def. ex. 147, r. 4237, 4251-4253; Karr, r. 2205-2208; see contracts describing this arrangement in comp. exs. 117, 118, 119-134, 135-145, r. 2729, 2771, 2846-2885, 2885-2888.]

136. The cooperatives purchasing power at wholesale from the Authority own and operate their own rural distribution systems and sell the power which they purchase from the Authority to the ultimate consumers, and the contracts with cooperatives not yet purchasing power contemplate the same type of operation. [See def. ex. 147, r. 4237, 4251-4253; Karr, r. 2205-2208; see contracts describing this arrangement in comp. exs. 117, 118, 119-134, 135-145, r. 2729, 2771, 2846-2885, 2885-2888.]

137. All of the Authority's contracts with said municipalities and cooperatives provide for the delivery of power at a voltage of from 2,300 volts upwards. Voltages of this magnitude are not suitable for delivery to the ultimate consumer, except for a few industrial consumers, and the municipality or cooperative which serves those consumers directly steps down this voltage one or more times after receiving it from the Authority at the point of delivery before actual delivery to the customer at the usual customer voltages of 115 and 230 volts. [See section entitled "Power Supply" in contracts, examples of which are reprinted in comp. ex. 117, r. 2729, 2730, 2743, 2762; comp. ex. 118, r. 2771, 2773, 2803, 2811, 2820; comp. ex. 119, r. 2846, 2848; comp. exs. 120-129, r. 2852-2860; comp. ex. 130, r. 2860, 2862; comp. ex. 132, r. 2867, 2868; comp. ex. 133, r. 2873,

FINDINGS OF FACT OF TRIAL COURT

2875; comp. ex. 134, r. 2879, 2881; comp. exs. 135-145, r. 2885-2888; *cf.* Moreland, r. 1486.]

138. All of the Authority's contracts with municipalities and cooperatives for the sale of power provide an arrangement whereby the Authority performs the function of a wholesaler generating and transmitting the power in bulk lots to the purchasing municipality and cooperative, which in turn sells the power to the ultimate consumers, performing all the functions of the distributor. [For reprints of contracts, see comp. exs. 117, 118, 119-134, 135-145, r. 2729, 2771, 2846-2885, 2885-2888.]

139. The contracts with municipalities and cooperatives provide only for the sale of firm power. [See references for fdg. 138.]

140. Municipalities and cooperatives under contract to purchase and purchasing power from the Authority assume responsibility for the power at the point of delivery and sell and distribute the power from that point over their own facilities and with their own operating staffs, without any assistance or direction from the Authority. The only assistance rendered by the Authority has been in time of emergency, and in such case the Authority has been paid its full cost, including its usual overhead. [Karr, r. 2223-2224, 2229-2230; *cf.* reprints of contracts, comp. exs. 117, 118, 119-134, 135-145, r. 2729, 2771, 2846-2885, 2885-2888; Hutchinson, r. 2272, 2274; Pittman, r. 1346-1347.]

141. The cooperatives to whom the Authority is under contract to sell power have certificates of incorporation from the authorized officials of the respective States in which they operate showing them to be organized under special acts of the several States in which they operate. These charters show that the corporations are organized by citizens of the respective localities in which the operations of the corporations shall be conducted who were desirous of procuring electric service, and the charter sets

FINDINGS OF FACT OF TRIAL COURT

out the form of organization, location of the principal office, terms of membership, purposes, powers, and the names of the board of directors for the first year. [See comp. exs. 267-274, r. 3040-3049, for Alabama charters; comp. exs. 943-953, r. 2996-4002, for Mississippi charters; r. 1520-1521.]

142. These organizations were brought about upon the initiative of the residents of the various communities who were desirous of procuring electric service, without any solicitation on the part of the Authority or any of its representatives. [Hutchinson, r. 2271-2278; Cowley, r. 2263-2269; Pittman, r. 1342-1347.]

143. Upon the request of the citizens of the rural areas in which the respective cooperatives are located, the Authority has given advice and assistance to such cooperatives on problems of organization and has given technical advice on methods of conducting surveys and determining the financial feasibility of proposed operations. [Hutchinson, r. 2274-2275; Pittman, r. 1344, 1345.]

144. The Authority, in advising on the financial feasibility of proposed lines, has not substituted its judgment for that of the respective cooperatives. The cooperatives have made all decisions on line extensions, customers to be served, and all other matters relating to the conduct of their operations. [Hutchinson, r. 2274; Carmack, r. 1355; Pittman, r. 1345-1347.]

145. All contracts between the Authority and the several cooperatives relating either to the construction of lines or to the sale of power have been submitted to and approved by counsel for the respective cooperatives and then considered and finally approved by the board of directors of the respective cooperatives. [Pittman, r. 1346, 1347; Carmack, r. 1354, 1355.]

146. While the Authority has in a few instances temporarily operated directly the lines of certain cooperatives under agreements with such cooperatives providing for

FINDINGS OF FACT OF TRIAL COURT

such operation by the Authority, all of such operating agreements had expired by December 15, 1937, and all lines constructed for cooperatives had been transferred to such cooperatives. [Karr, r. 2202-2203; see def. ex. 143, r. 4192, showing dates of power contracts and initial purchases.]

147. Upon the transfer of any lines constructed by the Authority for cooperatives or temporarily operated by the Authority for such cooperatives, the Authority has withdrawn completely from any participation in the conduct of the affairs of such cooperatives, except as it has continued to supply power at wholesale and except as to the enforcement of its rights as a contractor of such of the cooperatives whose lines were financed in whole or in part by the Authority. [Hutchinson, r. 2274-2275; Carmack, r. 1354, 1355.]

148. The power contracts with industrial customers provide in some cases for the delivery of power on the low-tension side of a substation to be owned by the Authority, and in other cases on the high-tension side of a substation to be owned by the industrial customer. In the case of the Electric Metallurgical Company the contract provides that delivery shall be made at the boundary of the Wilson Dam reservation at a high transmission voltage. All the contracts are for sales in bulk lots for use in various industrial processes. [See comp. exs. 118, 151, 152, 160, 161, r. 2771, 2890, 2895; def. exs. 145, 146, r. 4235-4236 (for convenience see reprints of industrial contracts in comp. ex. 118, r. 2771, 2828, and def. ex. 154 (original)).]

149. These industrial contracts provide for the delivery of power at voltages comparable to or higher than the voltages at which delivery is made to municipalities or cooperatives. [See comp. exs. 118, 151, 152, 160, 161, r. 2771, 2890, 2895; def. exs. 145, 146, r. 4235-4236; for references regarding voltage for delivery to municipalities see fdg. 137.] These delivery voltages range as high as 154,000 volts, which is specified for the delivery to the Aluminum

FINDINGS OF FACT OF TRIAL COURT

Company of America. [Cf. def. ex. 154 (original) pp. 150, 151, sec. 2 of Aluminum Company contract.]

150. Except for the industrial customers located in the ceded area covered by the contract of January 4, all of the industrial customers with whom the Authority is under contract to sell power are large electro-chemical and electro-metallurgical companies. [See contract with Victor Chemical Works, def. ex. 154 (original) and particularly the 2d "Whereas" clause on p. 303 and sec. 11, p. 306; contract with Monsanto Chemical Co., comp. ex. 118, r. 2771, 2828; Karr, r. 2209.] The Electro Metallurgical Company, which is locating a new plant in the ceded area, is also of this type. [See contract in def. ex. 154 (original) p. 315, and particularly the 3d "Whereas" clause and sec. 11.]

151. All of said industrial customers outside the ceded area and the Electro Metallurgical Company constitute new loads in the territory. The loads contracted for have not been previously served by any of the complainant companies. [Def. ex. 143, r. 4193, 2d column; Karr, r. 2200.] Under the contracts with the Victor Chemical Works, the Monsanto Chemical Company, and the Electro Metallurgical Company (in the ceded area) these companies undertake to construct new plants and purchase power from the Authority for service to these plants. [See def. ex. 154 (original) pp. 302, 315; comp. ex. 118, r. 2771, 2828-2829.] The contract with the Aluminum Company of America shows that that company was about to enlarge its facilities and needed additional power to supplement its own generation. [Def. ex. 154 (original) p. 309.]

152. Complainant companies do not maintain excess capacity and facilities for service to loads of such large and unusual size as that of these electro-chemical and electro-metallurgical customers of the Authority, but constructed facilities for service to these companies as needed. [Miller, r. 1115.]

FINDINGS OF FACT OF TRIAL COURT

153. All of said large industrial customers have contracted to purchase large amounts of secondary power as well as firm power. [See def. ex. 154 (original) pp. 302, 309, 315, 316; comp. ex. 118, r. 2771, 2828.]

154. Secondary power is that class of power the delivery of which the seller may interrupt during periods which are variously specified in the contract of sale. [Moreland, r. 1449-1450.] All of the industrial customers outside of the ceded area have contracted to purchase large amounts of this secondary power of which the Authority may, under the contracts, suspend delivery for specified periods of time, such as in event of low-water flow. [Karr, r. 2209; cf. def. ex. 154 (original) p. 309, sec. 2 (Aluminum Co.); pp. 302, 304, sec. 5(d) (Victor Chemical Works); pp. 315, 316, sec. 4 (Electro-Metallurgical Co.); comp. ex. 118, r. 2771, 2828, sec. 4.] These sales of secondary power materially increase the Authority's sales of energy during the period that such power is available. [Karr, r. 2210, 2212.] These sales of secondary power to large industrial customers will increase the load factor of the Authority's operations during these periods when the power is delivered. [Karr, r. 2212.]

155. It is not feasible to sell this secondary power to such large industrial customers through a retailer or an intermediary. [Karr, r. 2209-2210.]

156. These large manufacturing plants and utility companies, such as the Arkansas Power & Light Company, with whom the Authority also has a contract providing for the sale of secondary power, are the type of customers whose operations are adapted to the use of that type of power. [Karr, r. 2209, 2210; Moreland, r. 1449-1450.]

157. The following contracts provide for the sale of both firm and secondary power for the period of years noted:

FINDINGS OF FACT OF TRIAL COURT

(a) Contract between Tennessee Valley Authority and Monsanto Chemical Company, dated May 15, 1936, for 20 years. [Comp. ex. 118, r. 2771, 2828.]

(b) Contract between Tennessee Valley Authority and Aluminum Company of America, dated July 17, 1936 [def. ex. 154 (original) p. 150], as amended by agreement of July 20, 1937, for 10 years [def. ex. 154 (original) p. 313].

(c) Contract [*sic*] between Tennessee Valley Authority and Arkansas Power & Light Company, dated June 16, 1937, for 5 years, but continuing in effect until cancelled by either party on 30 months' notice. [Def. ex. 154 (original) p. 294.]

(d) Contract between Tennessee Valley Authority and Victor Chemical Works, dated July 2, 1937, for 20 years. [Def. ex. 154 (original) p. 302.]

(e) Contract between Tennessee Valley Authority and Aluminum Company of America, dated July 20, 1937, for 20 years, but cancellable by either party at the end of 10 years on 5 years' notice. [Def. ex. 154 (original) p. 309.]

(f) Contract between Tennessee Valley Authority and Electro Metallurgical Company, dated August 17, 1937, for 20 years. [Def. ex. 154 (original) p. 315.]

158. The maximum amounts of secondary power which the Authority has contracted to sell are as follows:

Monsanto Chemical Company.....	32,500 kw.
Aluminum Company of America (July 17, 1936).....	40,000 kw.
Arkansas Power & Light Company.....	5,000 to 20,000 kw.
(prior to 6-30-38.....)	10,000 kw.
year ending 6-30-39.....	15,000 kw.
year ending 6-30-40.....	20,000 kw.
year ending 6-30-41.....	15,000 kw.
year ending 6-30-42.....	10,000 kw.
thereafter ..	5,000 kw.)
Victor Chemical Works.....	16,000 kw.
Aluminum Company of America (July 20, 1937).....	30,000 kw.
Electro Metallurgical Company ..	16,000 kw.

[See references to contracts in fdg. 157 above.]

FINDINGS OF FACT OF TRIAL COURT

159. The periods in which the Authority is obligated to supply such secondary power and the required notices before interrupting and resuming secondary power deliveries are as follows for the respective contracts above mentioned:

Contract	Period Authority obligated to supply secondary power	Notice required before interruption of delivery	Notice required before resumption of delivery
Monsanto Chemical Co.	300 days annually	14 days	14 days
Aluminum Co. of America (July 17, 1936)	Not less than 90 days when and if available in judgment of Authority	15 days	15 days
Arkansas P. & L. Co.			
Prior to 7-1-42	300 days annually	15 days	7 days
Beginning 7-1-42	75% of the time	5 days	"Reasonable" time
Victor Chemical Works	9 months annually	14 days	7 days
Aluminum Co. of America (July 20, 1937)	75% of the time in ten years	21 days	7 days
Electro Met. Co.	9 months	14 days	7 days

[See references to contracts in fdg. 157 above.]

160. All of the Authority's contracts contain a force majeure clause which relieves the Authority of any obligation to supply power when prevented by injunctions, strike, riot, invasion, fire, accident, breakdown, act of God, or any other causes beyond the Authority's control. In addition the force majeure clause in each of the contracts with the 4 large industrial contractors and the Arkansas Power & Light Company, except the force majeure clauses in the contract with the Aluminum Company dated July 17, 1936, as amended, and in the contract with the Monsanto Chemical Company, relieves the Authority of obligation to supply power when service is interrupted or suspended by reason of floods or backwater caused by floods. The force majeure clauses apply to both firm and secondary power. [See references to contracts in fdg. 157 above.]

161. The Authority's contracts with the Aluminum Company and the Arkansas Power & Light Company pro-

FINDINGS OF FACT OF TRIAL COURT

vide that if an emergency or breakdown should occur on the system of either contracting party, the other party shall stand by and supply the power needed in the emergency to the full extent its facilities enable it to do so. [See def. ex. 154 (original) p. 294 (Arkansas P. & L. Co.); def. ex. 154 (original) p. 313 (Aluminum Co.).]

162. All contracts between the Authority and municipalities or cooperatives are for a period of 20 years from the respective dates of execution thereof, except that the contracts with the cities of Florence, Sheffield, and Tusculumbia, Alabama, all of which purchase power at the Wilson Dam reservation, are for a period of 30 years from the respective dates of execution thereof. [See contracts reprinted in comp. ex. 117, r. 2729; comp. ex. 118, r. 2771; def. ex. 154 (original).]

163. With the exception of small industrials in the "ceded areas," all power contracts except one contain either the following provision immediately after the recitals:

Now Therefore, subject to the provisions of the Tennessee Valley Authority Act of 1933, as amended, the parties hereto agree as follows:

or an identical provision except that the word "pursuant" is used in the first line above quoted instead of the word "subject." [See contracts reprinted in comp. ex. 117, r. 2729; comp. ex. 118, r. 2771; def. ex. 154 (original).]

164. The following provision:

* * * should [the contracting municipality or cooperative] desire to increase its purchases in excess of _____ kilowatts, Authority shall deliver such excess upon written demand and after reasonable notice, provided that the requirements of Authority and/or the United States reasonably enable it to do so.

FINDINGS OF FACT OF TRIAL COURT

is contained in each of the contracts specified below, with the number after the name of each purchaser indicating the number of kw entered in the blank in the clause above.

Municipality or cooperative	kw.	[Comp. Ex. No.
North Georgia Electric Membership Corporation....	300	118
Pickwick Electric Membership Corporation.....	300	139
Pontotoc County Electric Membership Corporation..	1,000	118
Joe Wheeler Electric Membership Corporation.....	1,000	142
Gibson County Electric Membership Corporation...	300	137
Duck River Electric Membership Corporation.....	300	140
Cullman County Electric Membership Corporation..	300	136
Middle Tennessee Electric Membership Corporation.	300	138
City of Jackson, Tennessee.....	480	133
City of Tusculumbia, Alabama.....	3,000	124
City of Trenton, Tennessee.....	1,500	132
City of Sheffield, Alabama.....	4,500	118
City of Florence, Alabama.....	7,500	123
Northeast Mississippi Electric Membership Corpora- tion	750	144
Tippah County Electric Membership Corporation....	750	224
City of Amory, Mississippi	6,000	119
City of Middlesboro, Kentucky.....	3,000	130
City of Knoxville, Tennessee.....	35,000	125
City of Guntersville, Alabama.....	3,000	128]

The maximum amount of power each industrial or utility customer may purchase from the Authority is definitely specified in the contract with such customer.

165. The Authority has contracts with municipalities now purchasing power calling for the availability of 38,380 kw. [Comp. exs. 119, 123, 133, 120, r. 2846, 2856, 2873, 2852; comp. ex. 118, r. 2771, 2799, 2800, 2801, 2802; comp. ex. 117, r. 2729, 2740, 2741, 2742, 2760.]

166. The Authority has contracts with municipalities not yet purchasing power calling for the availability of 135,000 kw. [Comp. exs. 126, 127, 128, 129, 130, 132, 134, r. 2857-2873, 2879; comp. ex. 118, r. 2771, 2807, 2808.]

167. The Authority has contracts with rural cooperatives now purchasing power calling for the availability of

FINDINGS OF FACT OF TRIAL COURT

9,300 kw. [Comp. exs. 135-142, r. 2885-2887; comp. ex. 118, r. 2771, 2809, 2816, 2817; comp. ex. 117, r. 2729, 2770; comp. ex. 196, r. 3004.]

168. The Authority has contracts with industrial companies by which it contracts to sell 127,850 kw. of firm power. [Comp. exs. 146-152, 153-156, 159-161, r. 2889-2890, 2891, 2894-2895; comp. ex. 118, r. 2771, 2828; def. exs. 145, 146, r. 4235-4236; def. ex. 154 (original) pp. 302, 309, 315.]

169. The Authority has contracts with industrial companies and utilities by which it contracts to sell 139,500 kw. of secondary or interruptible power. [Comp. ex. 118, r. 2771, 2828; def. exs. 145-146, r. 4235-4236; def. ex. 154 (original) pp. 302, 309, 315.]

POWER FACILITIES USED OR TO BE USED
IN MEETING THESE CONTRACTS

170. The transfer of the Muscle Shoals properties from the War Department to the Tennessee Valley Authority after the passage of the Tennessee Valley Authority Act included the Wilson Dam and power plant, with 8 generators having a total installed capacity of 184,000 kw., and the Sheffield steam plant, with an installed capacity of 60,000 kw. [comp. ex. 113 (original) p. 24]; also 7.8 miles of high-voltage transmission lines leading from Wilson Dam to various points on the Government reservation, including Nitrate Plant No. 2 [def. ex. 136, r. 4175, 4177].

171. A single generator at Norris Dam, constructed by the Authority, was put in operation on July 28, 1936; a second generator was put in operation on September 30, 1936. Each of these generators are of 50,000-kw. capacity. A single generating unit at the Wheeler project, constructed by the Authority, was put in operation on November 9, 1936; a second unit was put in operation on April 14, 1937. Each of these units is of 32,000-kw. capacity. [Def. ex. 149, r. 4255.]

FINDINGS OF FACT OF TRIAL COURT

172. The failure to generate and sell power available at the Wilson, Norris, and Wheeler Dams not needed for governmental uses would result in its complete waste. Substantial amounts of such power have been wasted because of lack of markets in every year since the construction of Wilson Dam. [Def. ex. 149, r. 4255; Karr, r. 2211-2212.]

173. Pursuant to the contract of January 4, with the complainants Alabama Power Company and Mississippi Power Company the Tennessee Valley Authority purchased certain transmission lines extending from Wilson Dam to the nearby area in northwest Alabama and northeast Mississippi. [Def. ex. 143A, r. 4195, and particularly exhibits "A" and "B," r. 4209 *et seq.*] The lines, which included auxiliary electrical properties, such as substations and rural lines in the area, were located in 10 counties in Mississippi and 6 counties in Alabama. [Def. ex. 143A, r. 4195, and particularly exhibits "A" and "B," r. 4209 *et seq.*] These 16 counties are hereinafter referred to as the "ceded area" covered by the contract of January 4. At the time of the transfer of the properties there were approximately 14,200 electric customers in the ceded area. [Sweatt, r. 793; Barry, r. 876.] These customers and all additional customers in the area are now being served by municipalities, cooperatives, and the Alabama Power Company, to whom the Authority sells and delivers power at wholesale for resale in the area [def. ex. 143, r. 4192-4193; Barry, r. 870, 871], except for a few industrial customers and the rural customers, relatively small in number, in the vicinity of Wilson Dam, being served by the Authority [def. ex. 143, r. 4192; Karr, r. 2202].

174. The properties in Alabama purchased from the Alabama Power Company, a complainant in this case, included 128 miles of high-voltage transmission lines [def. ex. 136, r. 4175, 4177], 24 substations located along these lines [def. ex. 136, r. 4175, 4181, 4182], and 203 miles of

FINDINGS OF FACT OF TRIAL COURT

rural lines [Barry, r. 871; Henkle, r. 1055; def. ex. 136, r. 4184A]. All of the municipal distribution systems belonging to the Alabama Power Company in these 6 counties, some 12 in number, were served from these transmission lines. [Def. ex. 143A, r. 4195, and particularly r. 4218; Barry, r. 870; Henkle, r. 1055.] They were retained by the Alabama Power Company. Approximately 1,000 rural customers were served from the rural lines at the time of transfer. [Henkle, r. 1055.] The industrial customers being served from these properties at the time of transfer were 48 in number, with a load of approximately 5,000 kw. [Henkle, r. 1054.]

175. The properties located in Mississippi were purchased from the Mississippi Power Company, a complainant in this case, and consisted of 87.3 miles of high-voltage transmission lines [def. ex. 136, r. 4175, 4178], 7 substations [def. ex. 136, r. 4175, 4181], and 167 miles of rural lines [Sweatt, r. 791]. Certain municipal distribution systems and steam and oil generating plants were included in the purchase from the Mississippi Power Company. [Def. ex. 143A, r. 4210, 4211.] Subsequent to the conveyance of the municipal distribution systems to the Authority in May 1934, these distribution systems were sold to municipalities or cooperative organizations of citizens and farmers formed under the laws of Mississippi. [See contracts for power purchase with certain rural associations, reciting that certain distribution properties were transferred—comp. ex. 117, r. 2729, 2760, 2761; comp. ex. 118, r. 2771, 2816, 2817; cf. Karr, r. 2202; def. ex. 143, r. 4192.]

176. All of the properties purchased from the Mississippi Power Company were actually transferred to the Authority on approximately June 1, 1934. [Comp. ex. 113 (original) p. 25.] All of the properties purchased from the Alabama Power Company were transferred to the Authority in May 1936. [Karr, r. 2229.]

FINDINGS OF FACT OF TRIAL COURT

177. The only transmission lines, other than those purchased or constructed by the Tennessee Valley Authority, connected with any dam of the Authority are owned by the Alabama Power Company, The Tennessee Electric Power Company, and the Southern Tennessee Power Company, all subsidiaries of the Commonwealth & Southern Corporation. [Hapgood, r. 2139-2140; def. ex. 138 in *Reproductions of Certain Original Exhibits Submitted by Appellees*.] Subsidiaries of the Commonwealth & Southern Corporation and companies affiliated with the Electric Bond & Share Company own substantially all of the transmission lines and serve substantially all of the existing load centers in the area within a radius of 100 miles from each of the dams now under construction or completed. [Hapgood, r. 2139-2141; def. ex. 138 in *Reproductions of Certain Original Exhibits Submitted by Appellees*; Miller, r. 1111-1112.]

178. Unless the Authority built transmission lines leading from Wilson Dam and the dams it has constructed or has under construction, it could sell power only to utility companies, except for industrial customers that might locate at the dams and such municipalities and cooperatives as are located in the immediate neighborhood of the projects. Such sales to customers other than utility companies would be very limited. [Thomas, r. 2105, 2107; Miller, r. 1114.]

179. The Authority has constructed 407.6 miles of high-voltage transmission lines interconnecting the power plants at Wilson Dam and the other dams constructed or under construction. [Def. ex. 136, r. 4175, 4178.]

180. Such plant tie lines can be used to transfer power from one project to another and increase the availability and amount of power at Wilson Dam and on the resulting hydroelectric system. [Hapgood, r. 2142, 2161; Miller, r. 1102; Thomas, r. 2107.]

FINDINGS OF FACT OF TRIAL COURT

181. The most economical use of the Authority's dams for power supply requires interconnecting transmission lines similar to those constructed, under construction, or authorized for construction by the Authority. [Hapgood, r. 2142, 2161; Miller, r. 1102, 1115.]

182. Unless these lines had been constructed, the Authority would have been forced to rely for the interconnection of its various projects upon lines belonging to companies in the Commonwealth and Southern system, more particularly the lines of the Alabama Power Company and The Tennessee Electric Power Company. These existing lines of the complainant power companies were inadequate to perform these functions, and there was no existing line connecting Wilson Dam with Pickwick Landing Dam. [Hapgood, r. 2142.]

183. In addition to the plant tie lines and the 216 miles of high-tension lines purchased under the contract of January 4, the Authority has constructed 611.6 miles of transmission lines of a voltage of 22 kw. or over; it was constructing on October 15, 1937, an additional 79.1 miles of such lines; and on that date it had authorized for construction an additional 176.9 miles of such lines. [Def. ex. 136, r. 4175, 4178, 4179.]

184. These miles of high-voltage transmission lines constructed, under construction, and authorized by the Authority do not constitute duplication of existing transmission facilities in the area, but are useful and valuable additions to those facilities. [Hapgood, r. 2142-2146.]

185. In addition to the 31 substations purchased under the contract of January 4 from the complainants, the Authority is constructing, has constructed, or has authorized the construction of some 33 substations along or at the end of the transmission lines it has purchased or constructed, and has constructed or is constructing five additional substations at the dams. [Def. ex. 136, r. 4175, 4180.] The substations at the dams are used in stepping up the current

FINDINGS OF FACT OF TRIAL COURT

generated to higher voltages for transmission, and those along the lines are used in stepping the voltages down for delivery to the Authority's wholesale customers. [Moreland, r. 1485, 1486.]

186. The transmission lines substantially as constructed by the Authority are essential for service to the customers of the Authority now being served or under contract. [Hapgood, r. 2142-2146; Miller, r. 1112-1115.] Such lines were constructed for service to the customers under contract and not for any strategic purpose of injuring or threatening the complainants. [Hapgood, r. 2142-2143, 2165-2166.]

187. As of October 15, 1937, the Authority owned approximately 421 miles of rural lines in the vicinity of Wilson Dam or Norris Dam. [Def. ex. 136, r. 4175, 4184.] It also owned 107 miles of such lines in Lincoln County, which on December 11, 1937, it contracted to sell and transferred to the Lincoln County Electric Membership Corporation. [Karr, r. 2202-2203; see def. ex. 144, r. 4227.] Of the 421 miles still retained, 353 miles were constructed by the Authority, and of the 353 miles so constructed, 254 miles were located within the so-called ceded area in Alabama. [Def. ex. 136, r. 4175, 4184.] The remaining 68 miles owned by the Authority were either purchased from the complainant Alabama Power Company under the contract of January 4 or were purchased from the complainant The Tennessee Electric Power Company. [Def. ex. 136, r. 4175, 4184.]

188. In addition to the rural lines which the Authority has purchased or constructed and still retains, it has constructed 1,023 additional miles of such lines and sold them to municipalities or rural cooperatives with whom it was under contract to sell electric energy at wholesale; it constructed an additional 1,343 miles of such lines under construction contracts with municipalities or cooperatives

FINDINGS OF FACT OF TRIAL COURT

having power-purchase contracts. [Def. ex. 136, r. 4175, 4184.]

189. The rural lines constructed by the Authority and sold to the cooperatives were constructed with the Authority's own funds and sold to the respective cooperatives at the actual cost of such lines to the Authority plus its regular overhead charges, under an agreement secured by mortgage or other instrument of security for the repayment to the Authority of the indebtedness out of the proceeds of the electric business of the cooperative. [Comp. ex. 181, r. 2950; comp. ex. 117, r. 2760.]

190. The remaining rural lines constructed by the Authority for the cooperatives were constructed by the Authority under construction contracts between the Authority and cooperatives, under the terms of which the Authority has been repaid its actual construction cost, including the usual overhead. [Comp. exs. 162-175, r. 2895 *et seq.*, e.g., see sec. 3 of comp. ex. 162, r. 2897, and sec. 2 of comp. ex. 163, r. 2909; Hutchinson, r. 2272.]

191. Some of the respective cooperatives and municipalities purchasing power from the Authority have constructed many miles of rural line either by contract with an independent contractor or with their own crews, without any aid or assistance, financial or otherwise, from the Authority or any other federal agency. [Def. ex. 136, r. 4175, 4184.]

192. The high-tension transmission lines constructed by the Authority are similar in character and function to the lines purchased by the Authority under the contract of January 4. The substations constructed by the Authority are similar in character and function to the substations purchased by the Authority under the contract of January 4. The rural lines constructed by the Authority and retained in ownership or sold are similar in function and character to the rural lines acquired by the Authority under the contract of January 4. [Def. ex. 136, r. 4175;

FINDINGS OF FACT OF TRIAL COURT

def. exs. 136A, 136B, 137 in *Reproductions of Certain Original Exhibits Submitted by Appellees.*]

193. The Authority does not own or operate any municipal or urban distribution systems. [Karr, r. 2202-2203; def. ex. 154 (original) pp. 19-20.]

194. As of October 15, 1937, the total number of rural lines distributing TVA power, exclusive of those of the North Georgia Membership Corporation, was 3,086.7, and approximately 490 miles of additional lines were then under construction. Of such total mileage TVA owned and operated 629.7 miles. Of the total distribution lines distributing TVA power only 292 miles were constructed by municipalities or cooperatives. One thousand and twenty-three miles were constructed and financed by TVA, and 1,343 miles were constructed by TVA under contracts with municipalities or cooperatives [def. ex. 136, r. 4175, 4184], 1,593 miles having been constructed by TVA during its 1937 fiscal year [def. ex. 154 (original) p. 94].

195. Expenditures by TVA for distribution facilities up to June 30, 1936, amounted to \$1,809,114. This amount was increased to \$2,447,956 by June 30, 1937, and TVA proposes to expend an additional sum of \$272,000 for distribution facilities during the fiscal year of 1938. [Def. ex. 153 (original) p. 977.]

POWER SALES, PRESENT AND POTENTIAL

196. During the period from May 18, 1933, to January 1934, and of the contract of January 4, approximately 75% of the electricity sold by the Authority was sold to complainant power companies, subsidiaries of the Commonwealth & Southern Corporation, including the complainant Alabama Power Company, complainant Mississippi Power Company, complainant The Tennessee Electric Power Company, and noncomplainant Georgia Power Company. The total of the power so disposed of to these utility

FINDINGS OF FACT OF TRIAL COURT

companies since the passage of the Tennessee Valley Authority Act has amounted to 1,216,451,142 kwh. [Def. ex. 147, r. 4237, 4238, 4239, 4241, 4243.] The systems of all of the Commonwealth and Southern companies are interconnected into a single integrated system, and power delivered to one of these companies is merged in the common pool and becomes a joint source of supply. [Middlemiss, r. 1268, 1269.]

197. The power sold in the year 1937 was obtained exclusively from the hydroelectric generating facilities of the Authority, either directly or through interchange arrangements with the Commonwealth and Southern companies and the Aluminum Company of America. [Def. ex. 147, r. 4237, 4251-4253, column 2.] The steam plant at Muscle Shoals is not in operation. [Karr, r. 2228.]

198. In the calendar year 1937 the Tennessee Valley Authority sold substantial quantities of power to 17 municipalities owning and operating their own municipal distribution systems, 15 rural cooperatives owning and operating their own rural lines, 8 industrial customers, and 2 private utility companies. [Def. ex. 147, r. 4242-4243; Rankin, r. 1303; Barry, r. 870.] In addition the Authority sold substantial quantities of power to the Commonwealth and Southern companies in January and February under an extension of the contract of January 4. [Def. ex. 147, r. 4243.]

199. In addition to these sales under outstanding power contracts the Authority sold electric energy to residents on 6 Government reservations and to rural residents residing in the vicinity of Wilson and Norris Dams and Lincoln County, Tennessee. [Def. ex. 147, r. 4242.] On December 11, 1937, the Authority contracted to sell the rural lines in Lincoln County, Tennessee, and the Lincoln County Electric Membership Corporation contracted to buy said lines, and since that date these lines have been operated by

FINDINGS OF FACT OF TRIAL COURT

the Lincoln County Corporation. [Karr, r. 2202, 2203; def. ex. 144, r. 4227.]

200. As of October 31, 1937, the total of all residents served by the Authority on Government reservations and in the surrounding areas, exclusive of Lincoln County, was 3,228. [Def. ex. 147, r. 4242.] All of the Authority's remaining sales of electricity for public use were made at wholesale to municipalities and rural cooperatives. [Def. ex. 147, r. 4242-4243.] The number of ultimate consumers so served as of October 31, 1937, by said municipalities and cooperatives was approximately 31,900. [Def. ex. 147, r. 4242-4243.]

201. The direct sales to temporary rural customers and employees on Government reservations have been less than 4% of the total kw. sales each year of the Authority's operations. [Def. ex. 147, r. 4237 *et seq.*]

202. In addition to these sales in 1937, power generated by the Authority has been used in the construction of Chickamauga, Gunter'sville, Hiwassee, Norris, Pickwick, and Wheeler Dams, for service to the fertilizer works at Muscle Shoals, and for the operation of the navigation locks at the Authority's dams on the main stream of the Tennessee River. [Def. ex. 147, r. 4242.]

203. As of December 15, 1937, of the total number of 18 municipalities receiving wholesale service from the Authority, only 6 previously received service of any kind from any of the complainant companies. Of these, 5 were located in the ceded area covered by the contract of January 4, 1934. [Def. ex. 143, r. 4192.] The residents of the city of Jackson, Tennessee, outside the ceded area, were served directly by the complainant West Tennessee Power & Light Company, and some of them have stopped taking service from the complainant company and are buying from the city. [Winkler, r. 1036.]

204. All of the municipalities purchasing power from the Authority in 1937 owned and operated their own mu-

FINDINGS OF FACT OF TRIAL COURT

municipal distribution systems for a long time before the passage of the Tennessee Valley Authority Act, with the exception of Florence, Sheffield, and Tuscumbia, Alabama, and the city of Jackson, Tennessee. [Def. ex. 143, r. 4192.] The cities of Florence, Sheffield, and Tuscumbia, Alabama, are located in the ceded area covered by the contract of January 4, and their boundaries adjoin the Wilson Dam reservation. [Def. ex. 143A, and particularly r. 4218A.] The residents of these municipalities were previously served by the Alabama Power Company, which was operating distribution systems in these cities without franchises long before the Authority contracted with the municipalities [Hood, r. 862.]

205. Except for the cities of Athens, Alabama; Dayton, Tennessee; and Tupelo, Mississippi, all of the municipalities purchasing power at wholesale in 1937 which owned and operated their own distribution systems prior to purchasing from the Authority also owned a generating plant which was used to supply power for such systems. [Def. ex. 143, r. 4192.] The cities of Athens, Alabama, and Tupelo, Mississippi, both located in the ceded area covered by the contract of January 4, purchased their power at wholesale from the Alabama Power Company and the Mississippi Power Company, respectively, while Dayton, Tennessee, purchased its power supply from a local lumber mill. [Def. ex. 143, r. 4192, footnote 3.]

206. Only 2 customers of the total number of 16,108 customers receiving service as of October 31, 1937, from the 15 cooperatives purchasing power at wholesale from the Authority over all the rural lines they operated, whether constructed by them or by the Authority for them, ever received electric service of any kind from any of the complainant companies, except for customers located in the ceded area and served by means of lines sold to the Authority under the contract of January 4 and resold by the Authority to the cooperatives. [Street, r. 987; Wisdom, r. 850;

FINDINGS OF FACT OF TRIAL COURT

Winkler, r. 1039; Henkle, r. 1057; Jacobs, r. 1017; Bonner, r. 1010; Perkins, r. 1023-1024; Watson, r. 1028-1029; Ostermueller, r. 1092.]

207. Except for rural customers located in the ceded area on lines purchased from the complainant power companies, none of the rural customers served by the Authority or by municipalities purchasing power at wholesale from the Authority ever received service from any of the complainant companies. [See references for fdg. 206.]

208. None of the industrial loads which the Authority served in 1937 were previously served by any of the complainant companies except the industrial customers in the ceded area in Alabama, whose contracts were assigned to the Authority under the contract of January 4. [Def. ex. 143, r. 4192, 4193.]

209. In addition to the customers served by the Authority as of December 15, 1937, the Authority was as of that date under contract to serve 8 municipalities, 3 rural cooperatives, 2 industrial customers, and the War Department's requirements for the construction of Sardis Dam. [Def. ex. 143, r. 4192, 4193.]

210. Of the municipalities under contract but not yet purchasing as of December 15, 1937, 2 are located in the ceded area in Alabama, 1 is not served by any of the complainants (Middlesboro, Kentucky, served by Kentucky Utilities Company) and 5, including Chattanooga, Tennessee; Knoxville, Tennessee; Memphis, Tennessee; Guntersville, Alabama; and Paris, Tennessee, are now served by the complainants The Tennessee Electric Power Company, Tennessee Public Service Company, Memphis Power & Light Company, Alabama Power Company, and Kentucky-Tennessee Light & Power Company, respectively; that is, these companies presently own and operate urban distribution systems in the 5 municipalities. [Def. ex. 143, r. 4192, 4193.] The Authority is under contract to sell power at wholesale to these municipalities as soon as they acquire

FINDINGS OF FACT OF TRIAL COURT

distribution systems. If the municipalities construct new distribution systems and sell power and the complainants continue to operate their existing distribution systems in these municipalities, it is reasonable to believe that a large number of customers of complainants will elect to buy from the municipalities. [Ford, r. 1127; Lamar, r. 1135.]

211. Of the 3 cooperatives under contract but not yet purchasing power as of December 15, 1937, one is located within the ceded area in Mississippi. None of the 3 had previously purchased power from any of the complainants. [Def. ex. 143, r. 4192, 4193.]

212. Of the 2 industrial customers under contract but not yet purchasing power as of December 15, 1937, one is located in the ceded area in Alabama. Neither of the 2 was previously served by any of the complainants. [Def. ex. 143, r. 4192, 4193.]

REASONABLENESS OF CONDUCT OF AUTHORITY IN
DISPOSITION OF SURPLUS POWER

213. Under the contract of January 4, as amended and supplemented, the Commonwealth & Southern Corporation, as agent for its subsidiaries Alabama Power Company, The Tennessee Electric Power Company, Mississippi Power Company, and Georgia Power Company, purchased from the Authority power in the aggregate value of \$1,814,918.04. [Def. ex. 150, r. 4255, 4258.] In addition there to the Alabama Power Company had purchased from the Authority prior to January 4, 1934, power in the aggregate value of \$479,573.67. [Def. ex. 150, r. 4255, 4258.] The amounts of power delivered by the Authority to the Alabama Power Company and The Tennessee Electric Power Company (for the subsidiaries of the Commonwealth & Southern Corporation above mentioned), from January 4, 1934, to January 1, 1935, and for the calendar years 1935 and 1936, were as follows [def. ex. 150, r. 4255, 4257]:

FINDINGS OF FACT OF TRIAL COURT

Alabama Power Company.....	1934	110,127,068 kwh.
	1935	164,127,787 kwh.
	1936	344,308,127 kwh.
The Tennessee Electric Power Co.....	1934	39,514,200 kwh.
	1935	76,022,503 kwh.
	1936	212,313,103 kwh.

214. In addition to the sales of power under the contract of January 4, the Authority is currently selling power to 2 utility companies under recent contracts and has practiced no discrimination against complainant utility companies or other utility companies in the sale of power. [Def. ex. 145, r. 4235; Barry, r. 870.]

215. The so-called power policy of the Authority, dated August 15, 1933, consisting of a joint press release, was never formally approved by the Board of Directors of the Authority nor ever put into action or followed. [Def. ex. 29, r. 4061.]

216. The Authority has sold substantial blocks of power to many municipalities which formerly operated their own municipal generating plants, which sales did not involve any displacement of any existing load of the complainant companies. [Def. ex. 143, r. 4192.] The Authority has sold substantial blocks of power to cooperatives for distribution by them in rural areas to rural customers heretofore unserved, which sales did not involve any displacement of any existing load of complainant power companies. [Street, r. 987; Wisdom, r. 850; Winkler, r. 1039; Henkle, r. 1057; Jacobs, r. 1017; Bonner, r. 1010; Perkins, r. 1023-1024; Watson, r. 1028-1029; Ostermueller, r. 992; Carmack, r. 1355; Hutchinson, r. 2272, 2273; Cowley, r. 2264-2265.] The Authority has sold substantial blocks of power to industrial concerns who located new plants or enlarged existing plants, which sales did not displace any existing load of complainant power companies. [Def. ex. 143, r.

FINDINGS OF FACT OF TRIAL COURT

4192, 4193; def. ex. 147, r. 4237, 4242.] The Authority has sold substantial blocks of power to complainant and non-complainant companies with existing utility networks. [Def. ex. 150, r. 4255, 4257; Rankin, r. 1303.] In fact, none of the sales of power by the Authority have directly displaced any existing load of complainant companies except in the ceded area covered by the contract of January 4, in which the Authority purchased, for valuable considerations, the existing facilities from the complainants Alabama Power Company and Mississippi Power Company. [Def. ex. 143A, r. 4195.] None of the Authority's sales of power to date have indirectly displaced any existing load of the complainants outside the ceded area, except that the complainant West Tennessee Power & Light Company has lost some customers to the city of Jackson and has lost a load of approximately 50 kw. in the town of Gibson which it sold to the Gibson Power & Light Company; this latter load was lost to the complainant West Tennessee Power & Light Company when the properties in the town of Gibson were sold at auction by the Gibson Power & Light Company to the Gibson County Electric Membership Corporation. [Wisdom, r. 850-851.]

217. The officials of the Authority have taken the position in correspondence with municipal officials that the question of whether a municipality shall own and operate its own distribution system is one for the sole determination of the municipality. [Comp. ex. 412, r. 3244; def. exs. 5-9, r. 4031-4035.]

218. The Authority does not aid or assist in conducting surveys to determine the economic feasibility of proposed municipal-plant operations by municipalities applying for the purchase of power from the Authority. [Comp. ex. 412, r. 3244.]

219. The standard of the Authority in entering into power contracts with municipalities is the financial feasi-

FINDINGS OF FACT OF TRIAL COURT

bility of extending wholesale service to such municipalities as apply for wholesale service. [Comp. ex. 412, r. 3244.]

220. The Authority has not confined its power disposition to those municipalities which previously did not own and operate their own municipal distribution systems. [Def. ex. 143, r. 4192, column 2.] On the other hand, the Authority has throughout the course of its existence entered into a large number of contracts with municipalities who owned and operated municipal distribution systems before the passage of the Tennessee Valley Authority Act. [Def. ex. 143, r. 4192, column 2; Wisdom, r. 847; Sweatt, r. 794; Winkler, r. 1038.] The power contracts between the Authority and municipalities are substantially uniform, and there are no special provisions favoring municipalities who had not previously owned and operated their distribution systems or discriminating against municipalities that did own and operate their municipal distribution systems before the passage of the Tennessee Valley Authority Act. [For contracts see comp. ex. 117, r. 2729; comp. ex. 118, r. 2771; def. ex. 154 (original) p. 135 *et seq.*]

221. The contracts for the disposition of power between the Authority and municipalities and cooperatives contain provisions in which the parties agree that certain schedules of rates shall be charged by the wholesale purchaser to persons to whom it resells. These provisions for agreed resale rates are contained in all contracts regardless of whether or not the complainant utility companies own and operate distribution systems in the municipality or area where the purchased power is to be resold. [For contracts see comp. ex. 117, r. 2729; comp. ex. 118, r. 2771; def. ex. 154 (original) p. 135 *et seq.*]

222. The Authority has made no effort to regulate the rates of its municipal or cooperative customers and has taken no action regarding such rates other than entering into the initial agreement establishing resale rates.

FINDINGS OF FACT OF TRIAL COURT

223. There have been uniform and progressive increases of a substantial character in the amount of wholesale purchases of power made by each municipality which has purchased power from the Authority. [See def. ex. 147, r. 4237; def. ex. 154 (original) pp. 20-21.]

224. There has been a uniform and progressive increase in the number of ultimate consumers served by each municipality and cooperative that has purchased power at wholesale from the Authority. [Def. ex. 147, r. 4237.]

225. The amount of power purchased by each of the municipal customers of the Authority in October 1937 was on the average about 100% in excess of the respective amounts purchased by the respective municipalities in the initial month of wholesale service by the Tennessee Valley Authority. [Def. ex. 147, r. 4237.] This percentage of increase is in excess of the highest percentage of increase of any of the complainant companies in power sold to regular customers from 1933 to 1936. [See def. ex. 2, r. 4007; comp. exs. 10, 15, 23, 28, r. 2488, 2494, 2498, 2501; comp. exs. 30, 35, 38, 46, r. 2502, 2505, 2508, 2535; comp. exs. 55-57, r. 2540-2542; comp. exs. 76, 84, 96, 104, r. 2554, 2558A, 2604A, 2608.] It is greatly in excess of the approximately 20% of increase in the national production of electricity for the same period of years. [Comp. exs. 99, 99a, r. 2606.]

226. The annual average consumption of residential customers of municipalities and cooperatives purchasing power from the Authority generally exceeded the average for the same class of customers of the complainant companies. [For averages of residential customers of wholesale purchasers from TVA, see comp. ex. 919, r. 3948; for averages of comp. companies see comp. exs. 10, 15, 28, 35, r. 2488, 2494, 2501, 2505; comp. exs. 61, 62, 63, 76, r. 2546-2548, 2554; comp. exs. 84, 85, 96, 104, r. 2558A, 2558B, 2604A, 2608.]

FINDINGS OF FACT OF TRIAL COURT

227. The Authority has not induced the breach of any power contract between any complainant and any of its customers.

228. In marketing the power generated at its dams the Authority has not engaged in any solicitation of customers, coercion, duress, fraud, or misrepresentation in procuring contracts with municipalities, cooperatives, or other purchasers of power.

229. In marketing the power generated at its dams the Authority has not acted with any malicious or malevolent motive and has not conspired with municipalities or other prospective purchasers of power.

EXTENT OF DISPLACEMENT OF EXISTING
UTILITIES THREATENED

230. The defendant Authority has no plans and has made no investigations of any substantial character for the construction of any dams in the Tennessee Valley except the 7 high dams on the main stream and Norris and Hiwassee Dams on the tributaries. [Bowman, r. 1693-1695.] Other than these projects it has recommended only the construction of the Fontana Dam on the Little Tennessee River. [Bowman, r. 1694.] The surveys of the Tennessee River basin and its tributaries conducted by the Corps of Engineers of the United States Army for the War Department and reported in House Document No. 328, Seventy-first Congress, second session, concerned combined public and private projects; the 149 projects so surveyed have not been recommended for construction by the Federal Government. [R. 4273-4274; comp. ex. 105 (original) p. 19 (par. 33); r. 895.]

231. It is reasonably estimated that the utilities within ready transmission distance of the Authority's run-of-river plants, constructed or under construction, will require 310,000 kw. of additional capacity in 1939 and 787,500 kw.

FINDINGS OF FACT OF TRIAL COURT

of additional capacity in 1943. [Thomas, r. 2092, 2086-2105; def. ex. 133, r. 4150.] Of this amount the requirements of the Commonwealth and Southern companies which are complainants herein, plus the requirements of the non-complainants Georgia Power Company, Gulf Power Company, and South Carolina Power Company, affiliated and interconnected non-complainant companies, are 207,000 kw. in 1939 and 559,000 kw. in 1943 [def. ex. 133, r. 4150]; and the requirements of the Electric Bond and Share companies who are complainants herein and affiliated non-complainant companies are 88,200 kw. in 1939 and 190,000 kw. in 1943 [def. ex. 133, r. 4150]. The estimated energy requirements for the companies within ready transmission distance of the Authority's run-of-river dams, constructed or under construction, will be over 770,000,000 kwh. in 1939 and over 2,150,000,000 kwh. in 1943. [Thomas, r. 2091-2105; def. ex. 133, r. 4150.] Of these amounts the additional requirements of the Commonwealth and Southern complainant companies and the Georgia Power Company will be over 550,000,000 kwh. in 1939 and 1,600,000,000 kwh. in 1943. [Def. ex. 133, r. 4150.] The additional energy requirements of the Electric Bond & Share Company and affiliated companies with which they are interconnected will be over 200,000,000 kwh. in 1939 and over 560,000,000 kwh. in 1943. [Def. ex. 133, r. 4150.]

232. Some of the complainants have added substantially to their generating capacity since 1933. [Comp. ex. 502, r. 3335.] Some of the complainants are preparing for the construction of additional generating plants of a substantial capacity. The Tennessee Electric Power Company is preparing to construct a steam plant at Nashville with a generating capacity of approximately 25,000 kw. [Middlemiss, r. 1273.] The Appalachian Electric Power Company is constructing a hydroelectric project on the New River in Virginia with a planned installed capacity of about 75,000 kw. and has leased 55,500 kw. of power

FINDINGS OF FACT OF TRIAL COURT

from the Federal Government at navigation projects on the Kanawha River. [Argabrite, r. 834.] The Arkansas Power & Light Company has contracted to purchase 40,000 kw. from the Authority in the near future. [Def. ex. 145, r. 4235; def. ex. 154 (original) p. 294.]

233. There is a steadily increasing demand for electric energy in the area within transmission distance of the Authority's projects constructed, under construction, and investigated for construction. [Thomas, r. 2101-2103; comp. exs. 360, 370, r. 3090, 3126D; comp. ex. 372 in *Reproductions of Certain Original Exhibits Submitted by Appellants*; comp. exs. 374-376, r. 3128A-3148; comp. ex. 501, r. 3334.]

234. There are unserved potential markets for the electric energy which may be generated at the projects of the Authority, not involving any displacement of the existing loads of complainant companies, including new industries and unserved rural areas. The percentage of rural electrification in the States which make up the Tennessee River basin is small. In 1933 it ranged from 0.8% in Mississippi to 7.9% in Virginia. In 1936 it ranged from 2% in Mississippi to 10.3% in Virginia. [Hapgood, r. 2147-2148.]

235. There are many unserved rural areas. A great majority of the so-called rural customers on lines of complainants existing in the counties or areas where the lines of the cooperatives have been constructed were in towns of a population of 100 or more, or within 6 miles of a transmission substation. [Hapgood, r. 2169.] There was little area-wide rural electrification. The fact that the lines of the cooperatives extend out from load centers or communities produces less customer density to the mile. [Hapgood, r. 2169.]

236. The growth in demand in terms of the firm peak load of the principal companies operating in territory located within a radius of 250 miles of the dams recom-

FINDINGS OF FACT OF TRIAL COURT

mended in the TVA unified plan from 1929 to 1936 was approximately 22%, that is, from 2,992,000 kw. in 1929 to 3,652,000 kw. in 1936. [Comp. ex. 501, r. 3334, line 20 entitled "Firm Peak Load"; Moreland, r. 1454-1455.] It is reasonably estimated by experts from both sides that this firm peak load will increase at least an additional 772,000 kw. or 21%, by 1939. [Comp. ex. 501, r. 3334, line 20 entitled "Firm Peak Load"; Thomas, r. 2103, 2097; def. ex. 133, r. 4150.]

237. By the date the power generating units authorized for the dams of the Authority are installed it is reasonably estimated by witnesses for both sides that the power demand in the area within transmission distance of the projects of the Authority will be greatly in excess of the present peak-load ability of the existing generating plants in the area. Unless additional generating capacity is provided by private utilities or at the projects of the Authority, there is likely to be a substantial power shortage. [Thomas, r. 2091-2092, 2097; def. ex. 133, r. 4150; Moreland, r. 1459-1463; comp. ex. 501, r. 3334.]

238. Without subtracting the substantial amounts of power which the Authority has contracted to sell to large industrial customers, the Arkansas Power & Light Company, and municipalities not yet served, the amount of power which will be available at the projects of the Authority with authorized installations of generating capacity is less than the amounts of power necessary to meet the increases in demand in the area served by private utilities within transmission distance predicted for the date when these installations are scheduled for completion. [Def. ex. 133, r. 4150; def. ex. 141, r. 4188; comp. ex. 501, r. 3334.]

239. For most of the complainants 1936 represented a new high point in volume of power sales, the increases from 1930 to that year ranging up to more than 50%. Since 1933 sales to regular customers have increased even more rapidly, the rates of growth during the latter period rang-

FINDINGS OF FACT OF TRIAL COURT

ing up to approximately 75%. [Def. ex. 2, r. 4007; comp. exs. 10, 15, r. 2488, 2494; comp. ex. 102, r. 2607; comp. ex. 28, r. 2501; comp. ex. 76, r. 2554; comp. ex. 38, r. 2508; comp. ex. 96, r. 2604; Barry, r. 874; Ostermueller, r. 994; comp. exs. 47, 55-57, r. 2536, 2540-2542.]

240. The number of electric customers served has shown a substantial increase for each of the respective complainants, the present number of customers served in 1937 constituting a new high for the said respective complainants. [Def. ex. 2, r. 4007; for individual companies see references to fdg. 239 above.]

241. Both the gross and the net revenues of the respective complainants in their electric-utility operations have increased substantially in the period since the creation of the Tennessee Valley Authority. [Def. ex. 2, r. 4007; for individual companies see references to fdg. 239 above.]

242. In many cases the gross revenues have reached a new high for the respective companies. [Def. ex. 2, r. 4007; for individual companies see references to fdg. 239 above.]

243. From 1933 to the middle of 1937 the rate of growth in the consumption of electricity in the 7 States, parts of which compose the Tennessee Valley basin, has been in excess of the national rate. [See comp. ex. 919, r. 3946, for rate of increase in Valley States; see comp. ex. 99a, r. 2606A, for the national rate of increase.] The increase in average annual residential use of customers of many utilities operating in the area from 1933 to 1937 greatly exceeds the increase in national average annual residential use. [See def. ex. 154 (original) p. 22, for national average; for rates of increase for complainant companies, see comp. exs. 10, 16, 28, 35, r. 2488, 2495, 2501, 2505; comp. exs. 38, 47, 55-57, r. 2508, 2536, 2540-2542; comp. exs. 76, 84, 85, 96, 104, r. 2554, 2558A, 2558B, 2604A, 2608.]

FINDINGS OF FACT OF TRIAL COURT

244. The generating and transmission facilities of the complainants Alabama Power Company, Mississippi Power Company, The Tennessee Electric Power Company, and non-complainants Georgia Power Company, Gulf Power Company, and South Carolina Power Company are interconnected and are operated as an integrated power pool. [Middlemiss, r. 1268-1270; Barry, r. 875.] Any point on the system of any of said companies may be served with power generated at any other point in said power pool. [Middlemiss, r. 1268-1270; Thomas, r. 2091, 2088.]

245. The facilities of complainants West Tennessee Power & Light Company, Memphis Power & Light Company, and Mississippi Power & Light Company, and non-complainants Louisiana Power & Light Company and Arkansas Power & Light Company, both members of the Electric Bond & Share Company system, are interconnected, and operated as a common integrated transmission and generating pool. [Rankin, r. 1293.]

246. The entire power requirements of the complainant Tennessee Public Service Company are purchased from complainant Carolina Power & Light Company. [Lamar, r. 802.] The Carolina Power & Light Company is interconnected with the Appalachian Electric Power Company and the Duke Power Company. [Yoder, r. 813, 822-823.]

247. The generating and transmission facilities of the Appalachian Electric Power Company, Kingsport Utilities, Inc., and Kentucky & West Virginia Power Company, Inc., are interconnected and operated as an integrated transmission and generating-plant system. [Argabrite, r. 829-830.]

248. The generating and transmission facilities devoted to service to the municipalities now served by the respective complainants and under contract to purchase power from the Authority form parts of integrated transmission and generating systems and may be devoted to serving the growth in other loads on the system should there be any loss of load in any given municipality which

FINDINGS OF FACT OF TRIAL COURT

purchases power from the Authority due to loss of customers to said municipality. [Hapgood, r. 2170.]

249. The unserved rural market in the area adjacent to the lines of the respective complainants which can be economically served by the complainants is negligible in amount and the injury to the respective complainants from any extension of rural lines for service to this market by the Authority or municipalities or cooperatives purchasing power at wholesale from the Authority would also be negligible. [Street, r. 977-978; Ostermueller, r. 990-991; Bonner, r. 1006-1007; Jacobs, r. 1016; Perkins, r. 1021; Watson, r. 1026-1027; Winkler, r. 1034-1035; Henkle, r. 1052-1053; Argabrite, r. 842; Sargent, r. 886; Lamar, r. 802; Canaday, r. 803; Ford, r. 809-810; Yoder, r. 821.]

250. Prior to the completion of generating plants at Norris Dam on July 28, 1936, and Wheeler Dam on November 8, 1936 [def. ex. 150, r. 4255, 4256-4257], all power supplied by the Authority to said companies under the contract of January 4, 1934, was supplied from Wilson Dam. Wilson and Norris Dams are and have been interconnected from and after July 28, 1936. [Def. ex. 150, r. 4255, 4256-4257.] Norris Dam began generating power on July 28, 1936, and Wheeler Dam on November 9, 1936. [Def. ex. 150, r. 4255, 4256-4257.] All power purchased by the Alabama Power Company and The Tennessee Electric Power Company from and after the respective dates of completion of Norris and Wheeler Dams was supplied from an interconnected pool, including the power generated at both of said dams from and after the dates of completion. [Def. ex. 150, r. 4255, 4257; cf. Karr, r. 2211.]

251. The months of June through December 1936 were months of subnormally low stream flow in the Tennessee River. [Karr, r. 2210.] The purchases of power from the Authority by the Commonwealth and Southern companies in these months were very substantial. During the 7 months these purchases amounted to 552,562,368 kwh.

FINDINGS OF FACT OF TRIAL COURT

[def. ex. 147, r. 4237, 4241; def. ex. 148, r. 4254], which was slightly more than the total amount of kwh. which could have been generated at Wilson Dam without the benefit of storage releases from Norris Dam [def. ex. 148, r. 4254, lines 3 & 4]. During August, September, and November the purchases by the Commonwealth and Southern companies were substantially greater in proportion to the generating ability of Wilson Dam without benefit of Norris Dam [Karr, r. 2210-2211]; those purchases ranged from 110% to 137% of the amount of power which could have been generated at Wilson Dam in those months without the benefit of Norris Dam [def. ex. 148, r. 4254, line 6]. During this 7-month period the sales to the Commonwealth and Southern companies were approximately 92% of the amount of power which could be generated at Wilson Dam including the benefit of Norris storage releases [def. ex. 148, r. 4254, line 5], and 83.45% of the total TVA system sales [def. ex. 148, r. 4254, line 11]. In August, September, and November the Commonwealth and Southern companies purchased more power than Wilson Dam generated, including the generation resulting from Norris storage releases, the percentages varying from 101.82% in August to 108.51% in September. [Def. ex. 148, r. 4254, line 5.]

FINDINGS OF FACT OF TRIAL COURT

District Judge Gore suggested certain modifications of the following findings of fact (r. 665): 39, 42, 53, 54, 62, 63, 68, 69, 71, 73, 93, 186, 198, 216, 237, 249, 250.

District Judge Gore dissented from the following findings of fact (r. 664): 38, 41, 43, 46, 47, 52, 55, 56, 59, 60, 66, 70, 75, 125, 184, 196, 197, 213, 214, 217-220, 222, 228, 229, 238, 243, 251.

REPORT

THE STATE OF THE UNION

The President of the United States, in his annual message to Congress, has presented a comprehensive report on the state of the Union. This report covers the progress of the nation in various fields, including agriculture, commerce, and industry. It also discusses the challenges facing the country and the policies proposed to address them.

The report is divided into several sections, each focusing on a different aspect of the nation's development. The first section discusses the state of the economy, while the second section focuses on the progress of the military.

The third section discusses the progress of the civil service, and the fourth section discusses the progress of the judiciary. The fifth section discusses the progress of the education system, and the sixth section discusses the progress of the health care system.

The report also includes a section on the progress of the foreign relations of the United States. This section discusses the progress of the nation's diplomatic efforts and the progress of its relations with other countries. It also discusses the progress of the nation's efforts to promote peace and stability in the world.

The report concludes with a section on the progress of the nation's efforts to improve the lives of its citizens. This section discusses the progress of the nation's efforts to reduce poverty and improve the standard of living.

The report is a comprehensive and detailed account of the state of the Union. It provides a clear and concise overview of the progress of the nation in various fields, and it also discusses the challenges facing the country and the policies proposed to address them.

The report is a valuable resource for anyone interested in the state of the Union. It provides a clear and concise overview of the progress of the nation in various fields, and it also discusses the challenges facing the country and the policies proposed to address them. The report is a comprehensive and detailed account of the state of the Union, and it is a valuable resource for anyone interested in the state of the Union.

SECTION B**CONCLUSIONS OF LAW OF TRIAL COURT**

1. The Tennessee Valley Authority Act is a valid exercise of the constitutional powers of Congress.
2. All of the acts complained of and established by the evidence in this cause are authorized by the terms of the Tennessee Valley Authority Act, and the portions of the statute granting such authority are within the constitutional powers of Congress.
3. Neither the Tennessee Valley Authority nor any of its directors have exceeded the powers conferred upon them by the Tennessee Valley Authority Act.
4. The Tennessee River from its mouth at or near Paducah, Kentucky, to a point above Knoxville, Tennessee, is in law a navigable interstate waterway of the United States.
5. Under the power to regulate and promote interstate commerce conferred by subsection 3 of section 8 of article one of the Constitution of the United States, the Federal Government has the power to improve the navigable character of the Tennessee River by means of the construction of dams and reservoirs upon the main stream of the Tennessee and its tributaries. The selection or determination of the particular types of dams to be constructed for this purpose is a matter to be determined by Congress or its authorized agents.
6. The Federal Government, under the powers delegated to it by the Constitution of the United States, has the power to construct dams and reservoirs upon navigable rivers of the United States and upon tributaries of such navigable rivers for the purpose of controlling floodwaters on such rivers. The selection or determination of the particular types of dams to be constructed for this purpose is a matter to be determined by Congress or its authorized agents.

CONCLUSIONS OF LAW OF TRIAL COURT

7. Under the powers delegated to it by the Constitution of the United States, the Federal Government has the power to construct dams and reservoirs for the purpose of protecting interstate commerce, both upon the navigable waterways and upon the highways and railroads, from interruption and interference due to destructive floods.

8. Under the powers delegated to it by the Constitution of the United States, Congress has the power to construct dams and reservoirs for the purpose of protecting the instrumentalities of interstate commerce, including navigable waterways, railroads, highways, and manufacturing establishments engaged in the production of goods moving in interstate commerce, from the hazards and interruptions resulting from destructive floods.

9. Under the powers delegated to it by the Constitution of the United States, the Federal Government has the power to construct dams and reservoirs upon the Tennessee River and its tributaries for the purpose of controlling destructive floods in the Tennessee and Mississippi River Valleys.

10. Under the power to regulate and promote interstate commerce, the Federal Government has the constitutional power to construct all dams in the Tennessee River and its tributaries that are reasonably related to the improvement of the navigable character of the Tennessee River or any of its navigable tributaries.

11. Under the powers delegated to it by the Constitution of the United States, Congress has the power to authorize the construction of all dams upon the Tennessee River and its tributaries that will in fact contribute to the control of destructive floods in the Tennessee and Mississippi River Valleys.

12. Under the power to regulate and promote commerce between the several States, Congress has the constitutional power to authorize the construction of each of the

CONCLUSIONS OF LAW OF TRIAL COURT

dams constructed, under construction, or under investigation for construction by the Tennessee Valley Authority upon the main stream of the Tennessee River and its tributaries.

13. By the terms of the Tennessee Valley Authority Act, Congress has created the Tennessee Valley Authority as an agency of the Federal Government and has expressly authorized this agency to construct each of the dams constructed, under construction, or under investigation for construction on the main stream of the Tennessee River and its tributaries. Congress has from time to time authorized the construction of each individual dam constructed or under construction by appropriate appropriation statutes.

14. The water power created as a result of the construction of the dams authorized by the Tennessee Valley Authority Act is the property of the United States.

15. Congress has the constitutional power to authorize the installation and operation of such generating facilities at the dams authorized by the Tennessee Valley Authority Act as may be necessary to generate electric energy from the water power created by the construction of such dams.

16. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to make provision in the dams constructed by it upon the Tennessee River and its tributaries for the necessary facilities for generating electric energy. The statute specifically authorizes the installation and operation of power-houses, generators, and other facilities.

17. The electric energy generated at any of the dams authorized by the Tennessee Valley Authority Act is the property of the United States and may be disposed of by Congress or its authorized agency under subsection 2, section 3, article 4 of the Constitution of the United States.

18. The electric energy generated at any of the dams authorized by the Tennessee Valley Authority Act is law-

CONCLUSIONS OF LAW OF TRIAL COURT

fully and legally acquired property of the United States resulting from the exercise of its constitutional powers and may be used or disposed of in any manner which the Congress, in the exercise of its discretion, may select as the reasonable means of such disposition.

19. The Tennessee Valley Authority Act directs the Tennessee Valley Authority to operate all of the dams constructed by it primarily in the interests of navigation and flood control, but expressly authorizes the said Tennessee Valley Authority to generate electric energy at said dams insofar as this can be done consistently with the interests of navigation and flood control.

20. The method of operation of the dams and reservoirs constructed and under construction which the defendants have followed and propose to follow in the future is authorized by the Tennessee Valley Authority Act.

21. Under the power to dispose of property of the United States, Congress has the constitutional power to authorize the construction of transmission lines from the dams authorized by the Tennessee Valley Authority Act in order to dispose of the electric energy generated at such dams.

22. Under the power to dispose of property of the United States, Congress has the constitutional power to authorize the Tennessee Valley Authority to generate electric energy at all dams authorized by the Tennessee Valley Authority Act; to construct or acquire transmission lines leading from such dams to municipalities, cooperative associations of citizens and farmers not organized for profit, large industrial customers, and other purchasers of power.

23. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to construct or acquire transmission lines leading from each of the dams constructed under the authority of the Tennessee Valley Authority Act to the surrounding market area.

CONCLUSIONS OF LAW OF TRIAL COURT

24. Under the power to dispose of property of the United States, Congress has the power to authorize the Tennessee Valley Authority to sell electric energy generated at any of the dams authorized by the Tennessee Valley Authority Act to wholesale customers under long-term contracts.

25. Under the power to dispose of property of the United States, Congress has the power to authorize the Tennessee Valley Authority to sell electric energy generated at any of the dams authorized by the Tennessee Valley Authority Act direct to rural customers and inhabitants of small towns and villages, and to industrial customers.

26. Under the power to dispose of property of the United States, Congress has the power to authorize the Tennessee Valley Authority to own and operate transmission lines and rural distribution lines for the purpose of transmitting and selling the electric energy generated at said dams.

27. Under the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to enter into contracts with municipalities, cooperative associations of citizens and farmers not organized for profit, and industrial customers for the sale of electric energy generated at the dams constructed by the Tennessee Valley Authority under said act.

28. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to sell electric energy generated at any of the dams constructed under the terms of said act direct to rural customers and inhabitants of small towns and villages.

29. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to own and operate transmission and rural distribution lines for the purpose of transmitting and selling the

CONCLUSIONS OF LAW OF TRIAL COURT

electric energy generated at any of the dams constructed under the authority of said act.

30. By the terms of the Tennessee Valley Authority Act, Congress has directed the Tennessee Valley Authority to give preference in the sale of power to States, counties, municipalities and cooperative organizations of citizens or farmers not organized for profit. This provision is a valid exercise of the power of Congress to dispose of property of the United States.

31. The Tennessee Valley Authority Act authorizes the Authority to construct rural transmission lines for service to farmers or cooperative organizations of citizens or farmers and to sell such lines to municipalities or such cooperative organizations. This provision is a valid exercise of the power of Congress to dispose of property of the United States.

32. The Tennessee Valley Authority Act authorizes the Authority to sell power direct to industrial customers in order to increase the load factor on the system. This provision is a valid exercise of the power of Congress to dispose of property of the United States.

33. The Tennessee Valley Authority Act authorizes the Board of Directors of the Authority to fix the rates at which the electric energy generated at the dams authorized by the Tennessee Valley Authority Act may be sold. The statute vests discretion in the board in fixing such rates, and the exercise of this discretion is not subject to judicial review. This provision of the statute is a valid exercise of the power of Congress to dispose of property of the United States.

34. Under the constitutional power to dispose of property of the United States, the Government may attach to the sale of its property such conditions as it may deem reasonable to insure the widespread diffusion of the benefits of such property and the avoidance of monopolistic control of such property.

CONCLUSIONS OF LAW OF TRIAL COURT

35. Under the power to dispose of property of the United States, Congress has the constitutional power to authorize the Tennessee Valley Authority to include in any contracts for the sale of power generated at any of the dams authorized by the Tennessee Valley Authority Act provisions with respect to the rates at which such power is to be resold to the ultimate consumers.

36. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Authority to include in any contracts for the sale of power generated at any of the dams authorized by the Tennessee Valley Authority Act provisions with respect to the rates at which such energy is to be resold to the ultimate consumers.

37. Under the power to dispose of property of the United States, Congress has the constitutional power to authorize the Tennessee Valley Authority to include in all contracts for the sale of power generated at any of the dams authorized by the Tennessee Valley Authority Act provisions relating to the bookkeeping and accounting methods to be followed by the purchasers of such power.

38. By the terms of the Tennessee Valley Authority Act, Congress has authorized the Tennessee Valley Authority to include in all contracts for the sale of power generated at any of the dams authorized by the Tennessee Valley Authority Act provisions relating to the bookkeeping and accounting methods to be followed by the purchasers of such power.

39. The Tennessee Valley Authority Act does not contain any provisions regulating or attempting to regulate the rates or operations of complainant companies or other private utilities.

40. Sales of power by the Tennessee Valley Authority in accordance with the provisions of the statute at rates fixed and determined by the board of directors do not constitute regulation of the rates or businesses of the complainant companies or other private utilities.

CONCLUSIONS OF LAW OF TRIAL COURT

41. The municipalities and cooperatives purchasing power at wholesale from the Authority are subject to regulation by the States.

42. The municipalities and cooperatives purchasing power at wholesale from the Authority are authorized under the statutes of the several States in which they are located to purchase said power, to contract with the Authority with respect to the same, and to engage in the business of selling the same at retail.

43. All of the municipalities and cooperatives purchasing power at wholesale from the Authority are authorized by the statutes of the several States in which they are located to enter into contracts with the Authority containing provisions agreeing upon the rates at which such power is to be resold and provisions relating to the bookkeeping and accounting methods to be followed by such purchasers. Under the laws of the several States in which the municipalities and cooperatives are located, such provisions do not constitute any unlawful delegation or abdication of sovereign power by the municipalities or cooperatives.

44. The provisions of the contracts between the Authority and the municipalities and cooperatives purchasing power at wholesale from it relating to the rates at which the power so purchased from the Authority is to be resold and the provisions relating to the methods of keeping accounts do not constitute any invasion of the reserved powers of the States under the tenth amendment to the Constitution of the United States.

45. The provisions in the contracts between the Authority and the municipalities and cooperatives purchasing power at wholesale from it relating to the rates at which such power is to be resold do not in law amount to regulation either of the rates of said wholesale purchasers or of the rates of private companies competing with such wholesale purchasers.

CONCLUSIONS OF LAW OF TRIAL COURT

46. Under the laws of the several States in which the municipalities and cooperatives purchasing power at wholesale from the Authority are located, the rates at which the power purchased from the Authority may be resold by the municipalities and cooperatives remain subject to the police power of the States, if and when the States may elect to exercise such power.

47. The cooperatives purchasing power at wholesale from the Authority are, under the laws of the several States in which they are located, independent corporate entities and not subsidiaries or instrumentalities of the Authority.

48. The municipalities purchasing power at wholesale from the Authority are, under the laws of the several States in which they are located, independent public agencies of said States and are not subsidiaries or instrumentalities of the Authority.

49. The municipalities and cooperatives purchasing power at wholesale from the Authority are authorized under the laws of the several States in which they are located to engage in the business of selling and distributing electric energy at retail and have the legal right to compete with the complainant companies in such business. Any damage or injury resulting or threatened to the complainant companies, or any of them, from such competition is *damnum absque injuria* and does not give rise to a cause of action on behalf of said companies.

50. None of the complainant companies have or claim any exclusive franchise or right to engage in the business of selling and distributing electricity in the various municipalities and communities in which they operate.

51. The sale of electric energy by the Tennessee Valley Authority to municipalities and cooperatives lawfully engaged in the business of selling and distributing said energy at retail does not result in any legal injury to any

CONCLUSIONS OF LAW OF TRIAL COURT

of the complainant companies and does not invade any legal right of any of said companies.

52. The complainant companies have no standing or right to challenge the right of the municipalities and cooperatives purchasing power at wholesale to engage in the business of selling and distributing electric energy in competition with said companies.

53. The complainant companies have no standing or right to challenge the legal right of the Authority to sell electric energy at wholesale to municipalities and cooperatives engaged in the business of reselling said energy at retail in legal competition with the complainant companies.

54. The complainant companies have no standing or right to challenge the validity of the contracts under which the Authority is selling or has agreed to sell electric energy at wholesale to municipalities and cooperatives engaged in the business of reselling said energy at retail in legal competition with the complainant companies.

55. Having failed to prove any damage in fact, actual or threatened, resulting from the sales of power by the Authority direct to rural customers not previously served by any of the complainant companies, said companies have no standing or right to challenge the legal right of the Authority to make such sales.

56. Having failed to prove any damage, actual or threatened, resulting from the sales of power by the Authority direct to industrial customers not previously served by any of the complainant companies, said companies have no standing or right to challenge the legal right of the Authority to make such sales.

57. The complainant companies have no legal right to be free from competition, and they have no legal standing or right to challenge the statutory powers of the Authority to generate, transmit, and sell electric energy in competition with them, or some of them.

CONCLUSIONS OF LAW OF TRIAL COURT

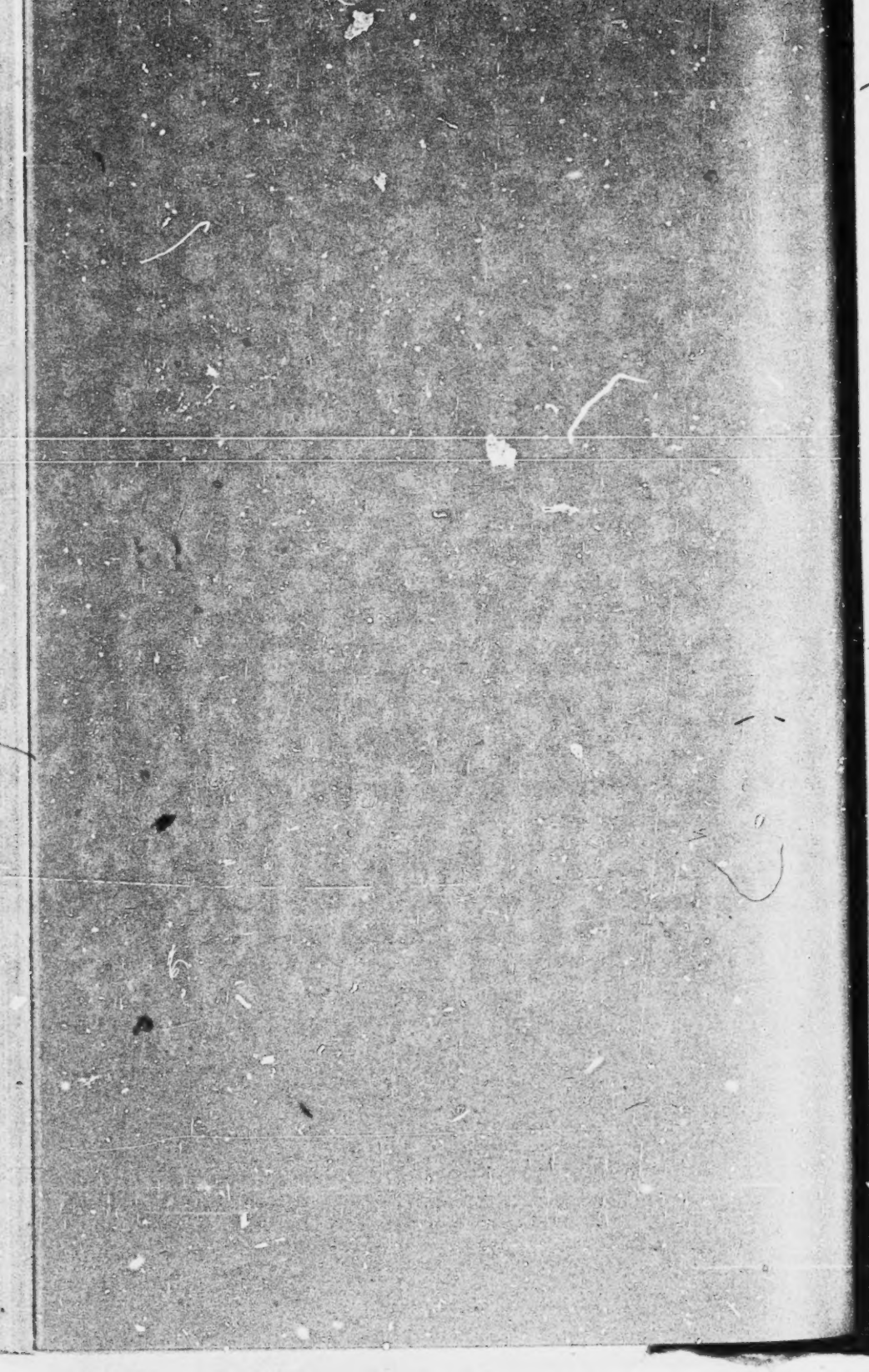
58. Under the decision of the Supreme Court in the Ashwander case, the right of the Authority to acquire and operate the facilities in Alabama transferred to it under the contract of January 4 is settled and cannot be questioned in this case.

59. Section 7 of the contract of January 4 confers upon the Authority the contractual right to serve municipalities located within the ceded area in Alabama, and the Alabama Power Company, a party to that contract, has no right to question the legal right of the Authority to engage in such service.

60. Section 7 of the contract of January 4 confers upon the Authority the right to sell power to any municipality owning and operating its own distribution system and not purchasing power from the utilities party to that contract, and the complainants Alabama Power Company, Mississippi Power Company, and The Tennessee Electric Power Company, parties to that contract, have no right to challenge sales to such municipalities by the Authority.

61. Section 7 of the contract of January 4, 1934, confers upon the Authority the right to sell power to any customers not served by the parties to that contract as of January 4, 1934, up to a maximum aggregate demand of 2,500 kw., and the complainants Alabama Power Company, Mississippi Power Company, and The Tennessee Electric Power Company have no right to challenge sales of power to customers served pursuant to the right so conferred.

62. Under the record the complainants have no legal right within the areas served by them respectively to exclude lawful competitors from the power markets of the future.



SECTION C**OPINION OF THE TRIAL COURT¹**

Decided January 21, 1938

Before ALLEN, Circuit Judge, and GORE and MARTIN, District Judges.

ALLEN, Circuit Judge.

Complainants have filed a bill in equity praying for relief against the operation of the Tennessee Valley Authority Act of 1933, as amended 48 Stat. 58, 49 Stat. 1075, 16 U.S.C. § 831 et seq, 16 U.S.C.A. § 831 et seq. The bill joins as defendants the Tennessee Valley Authority, the agency created by the Congress to carry out the provisions of these statutes, and Arthur E. Morgan, David E. Lilienthal, and Harcourt A. Morgan, who are the chief executive officers of the Authority and constitute its board of directors.

The complainants are nineteen companies generating, transmitting and distributing power within Tennessee, Alabama, Mississippi, North Carolina, South Carolina, Kentucky, Virginia, West Virginia, and Georgia, one of which, the Georgia Power Company, has been enjoined from participating in this action by the United States District Court for the Northern District of Georgia. *Georgia Power Co. v. Tennessee Valley Authority*, 17 F.Supp. 769. This decree has been affirmed by the Court of Appeals for the Fifth Circuit. 89 F.2d 218. For this reason we give no consideration to alleged competition of the Authority with the Georgia Power Company.

The complainants are in general owned by holding companies, as set forth in the findings of fact. They are all taxpayers, citizens of and authorized to do business within the states in which they operate, and none of them claims to operate under any exclusive franchise.

¹ As reported in 21 F.Supp. at 947. Reprinted in the record at page 542.

OPINION OF TRIAL COURT

The bill cannot be summarized within the appropriate limits for a trial court's opinion. In addition to its seventy pages of pleading and sixty-five pages of exhibits, it contains within the bill itself much that is argumentative, repetitious and immaterial to the legal questions presented. It charges coercion, fraud and conspiracy on the part of the defendants officially and individually. It charges that Secretary Harold L. Ickes, Public Works Administrator, has joined with the Authority in certain coercion and conspiracy against the legal rights of these complainants. The argumentative matter and conclusions which we deem immaterial are so interwoven with allegations bearing upon the legal questions presented that it is impossible to extricate them. The same statement is true of the prayer. Paragraphs h, i, l, o, p and q of the prayer are considered by the court to have no relation to this case under *Ashwander v. Tennessee Valley Authority*, 297 U.S. 288, at page 324, 56 S.Ct. 466, 472, 80 L.Ed. 688, which held that such matter presents no justiciable controversy. It suffices, therefore, to say that in its essential and material features the bill seeks a decree holding that the Tennessee Valley Authority Act of 1933, as amended, and the acts done by the board of directors thereunder officially and individually, violate the Constitution of the United States. It seeks an injunction restraining the defendants, their agents and employees, from carrying out the provisions of the statute with reference to the sale of electric power, from purchasing, constructing or otherwise acquiring electric generating plants, transmission lines or distribution lines, or from selling electric energy, except such energy as may be produced at Wilson Dam, "to the extent the production and sale of power at Wilson Dam has been held legal." For practical purposes this bill seeks to enjoin the further construction of TVA dams now in process of construction in the Tennessee Valley, the construction of new dams in such valley for which specific appropriation has been made by

OPINION OF TRIAL COURT

Congress, and the operation for generation and sale of electric power of all TVA dams built and to be built.

The answer denies the material allegations of the bill. Only one of the affirmative defenses requires special mention. The defendants claim that certain of the complainants are estopped to deny the constitutionality of the TVA statutes because of extensive purchases of power from the Authority. These purchases were made under the contract of January 4, 1934, by which certain complainants contracted with the Authority to transfer to the Authority their plants, lines, equipment, customers and franchises within certain counties within Mississippi and Alabama for a valuable consideration and upon the condition that the Authority would not operate within those states outside of the counties specified. The properties have been transferred and the contract to date has been fully performed. The court has ruled in favor of the complainants on this contention, and has held that the record presents no essential difference from the situation covered by the ruling as to estoppel in the Ashwander Case, *supra*; 297 U.S. 288, at page 323, 56 S.Ct. 466, 472, 80 L.Ed. 688, and therefore this question will not be discussed.

After a trial which consumed about seven weeks, in which approximately 1,400 exhibits were offered, the material issues in the case as briefed, argued and outlined in the actual testimony are defined as follows:

(1) Whether the Authority is engaged in acts constituting in law malice, coercion, and duress, to the injury of complainants.

(2) Whether the Authority and the individual defendants have conspired with Secretary Ickes and the Public Works Administration to induce municipalities and co-operative associations through loan grant agreements from the Public Works Administration to set up their own distribution systems and to coerce them into executing con-

OPINION OF TRIAL COURT

tracts for purchase of TVA power by threat of denial or cancellation of such PWA loan grants.

(3) Whether the acts of the defendants are authorized by the TVA statutes.

(4) Whether the act itself is unconstitutional and void, and the acts done under it are illegal because the Congress is not empowered either under the interstate commerce clause, article 1, § 8, or under the national defense powers, article 1, section 8, of the United States Constitution, to enact the TVA statutes.

(5) Whether the generation of electricity at the TVA dams is unlawful because it is inconsistent with the regulation of interstate commerce, with flood control, with the improvement of navigation on a navigable river, and with purposes of national defense.

(6) Whether the method of disposition of electric energy authorized by the TVA statutes is appropriate and constitutional under the power to dispose of property belonging to the United States conferred upon the Congress by section 3 of article 4 of the Constitution.

Each of the dams constructed, in process of construction, and proposed for the TVA system, while varying somewhat in use, as hereafter set forth, is a unit of an integrated multiple-purpose project, the system being designed for co-ordinated use of the full benefits of the river along the line of navigation, flood control, national defense and power development. Wherever water falls, power is created, and one of the express purposes of the TVA statutes is that hydro-electric power so created shall be sold to assist in liquidating the cost of the project. This is in line with the general development of the conservation movement from 1908 to the present, as it relates to streams. See National Waterways Commission Report, Senate Document 469, 62d Congress, Second Session, Appendix I, pages 27, 52, 61, 82, 85, 87; Statement of Chairman of Fed-

OPINION OF TRIAL COURT

eral Power Commission, House Document 395, 73d Congress, Second Session, page 54; Report of National Resources Board, pages 263, 264. Similar provisions as to river projects have been embodied in previous legislation. In 1912 a statute was enacted authorizing the Secretary of War to provide, in navigation dams, in order to make possible the economical future development of water power, such foundations, sluices, and other works as may be considered desirable for the development of such power. Act July 25, 1912, § 12, 37 Stat. 233, 33 U.S.C.A. § 609. The Boulder Canyon Project Act of 1928, 45 Stat. 1057, 43 U.S.C.A. § 617 et seq., provided for a multiple-purpose project for irrigation, flood control, improvement of navigation and generation of power. As fully appears from the opinion in *Arizona v. California*, 283 U.S. 423, 51 S.Ct. 522, 75 L.Ed. 1154, navigation on the Colorado River was negligible in comparison with navigation on the Tennessee River under the record in this case. Though navigation on the Colorado River had ceased, the project of reclaiming its navigability was held by the Supreme Court to establish the constitutionality of the multiple-purpose project, including the generation and sale of power.

TVA Project.

Pursuant to the TVA statute as amended and to subsequent related enactments, the Authority has constructed and is planning to construct seven high dams on the main channel of the Tennessee River, and certain dams on its tributaries. The Tennessee River is formed by the confluence of the Holston and French Broad Rivers in the east-central part of Tennessee. It flows southwesterly across the eastern part of Tennessee into Alabama, westerly across the northern part of Alabama, northerly between Alabama and Mississippi, and across the western part of Tennessee and Kentucky, and empties into the Ohio River near Paducah, Kentucky. Its length is 652 miles, and

OPINION OF TRIAL COURT

its drainage basin is 40,600 square miles. It has eight principal tributaries. The main stream dams, including Wilson, which was constructed previous to 1933, are as follows:

(1) Gilbertsville, on which preliminary investigations are in progress, located in Kentucky about 22 miles from the mouth of the river.

(2) Pickwick Landing Dam, under construction and almost completed, located in Tennessee about 206 miles from the river's mouth.

(3) Wilson Dam, now in operation, constructed by United States Army engineers and transferred to the Authority under the TVA Act, located at Muscle Shoals, Alabama, about 259 miles from the river's mouth.

(4) Wheeler Dam, construction of which was begun by the United States Army engineers and completed by the Authority, located in Alabama about 15 miles above Wilson Dam and about 275 miles from the river's mouth. This dam is now in operation.

(5) Guntersville Dam, under construction, located near Guntersville, Alabama, 349 miles from the mouth of the river.

(6) Chickamauga Dam, now under construction, located near Chattanooga, Tennessee, 471 miles from the mouth of the river.

(7) Watts Bar Dam, on which preliminary investigations are in progress, located in Tennessee about 530 miles from the mouth of the river.

(8) Coulter Shoals Dam, on which preliminary investigations are in progress, located in Tennessee 602 miles from the river's mouth.

The tributary dams are Norris, completed and in operation, located in Tennessee on the Clinch River about 79 miles from the mouth of the Clinch and about 647 miles

OPINION OF TRIAL COURT

from the mouth of the Tennessee, and Hiwassee Dam, now under construction, located in North Carolina on the Hiwassee River about 75 miles from the mouth of that river and about 560 miles from the mouth of the Tennessee River.

A third tributary reservoir, Fontana, on the Little Tennessee River, is recommended by the Authority, but the Congress has made no specific appropriation for this suggested dam. While Wheeler and Norris are the only dams built by the Authority which are completed and in operation, they co-ordinate in use with Wilson at Florence, Alabama. They release water to Wilson, and thus aid in the generation of power at Wilson. Wilson Dam was built under the national defense powers of the Congress, as held in *Ashwander v. Tennessee Valley Authority*, *supra*. While the constitutional authority to dispose of electric energy generated at Wilson Dam is not and cannot be questioned, its present use in combination with Norris and Wheeler, and its future use in conjunction with Guntersville, Chickamauga and Hiwassee, all of these dams being upstream from Wilson and each being part of an integrated system built for the combined purposes of navigation, flood control, power and national defense, has immediate bearing on this case.

The importance of the Tennessee drainage basin has been recognized for over a century and repeated acts of Congress have provided for the canalization of different parts of the river. A canal with locks throughout the length of Muscle Shoals opened to navigation in 1834 fell into disuse. Another Muscle Shoals canal was completed about 1891. The Rivers and Harbors Act of 1890, 26 Stat. 426, provided that the Colbert Shoals section should be improved by a lock and a canal. In 1913 the Hale's Bar lock and dam, completed by private interests, provided a canalization of 33 miles of the river below Chattanooga. The Widow's Bar lock and dam below Hale's Bar was

OPINION OF TRIAL COURT

completed in 1926. Wilson Dam provided a canalized waterway for 15½ miles from Muscle Shoals. Lock No. 1, immediately below Wilson Dam, was completed in 1926.

These projects were in general unrelated and uncoordinated. This was the situation when a comprehensive survey of the Tennessee basin was ordered in five successive Acts of Congress from 1922 to 1928, resulting in the reports contained in House Document 328. This document contained an exhaustive report by the district engineer and comments thereon, together with recommendations made by the division engineer, the board of engineers for rivers and harbors, and the chief of engineers. It set forth alternate plans for securing a depth of nine feet in the main stream, that is, an improvement for navigation only, and also a plan for the development of the river and its tributaries for purposes of flood control, navigation and power. The suggested plan for the improvement of navigation only involved in one of its phases the building of 32 low dams which would provide a nine-foot navigable channel, but would have no value either for flood control or power.

House Document 328.

The complainants vigorously assert that House Document 328 recommends the low dam plan, as distinguished from the TVA plan. It is of little assistance in this phase of the controversy to rely only upon the recommendations of the various engineers, without studying the text (House Document 328, pages 1-25). As to the report of the district engineer, of which the chief of engineers said "There has never been presented to Congress a more thorough and exhaustive study", the board of engineers for rivers and harbors, in its conclusions on the various projects presented, stated that "The construction of the storage reservoirs" (on the tributaries) "described in this report would have a favorable effect in reducing floods on the

OPINION OF TRIAL COURT

Tennessee River and on the lower portions of its tributaries" (p. 23). It declared that "The improvement of the Tennessee from its mouth to Knoxville by a series of low movable dams without power development would have practically no effect on floods" (p. 23). It also said, speaking of low-lift dams, that "Such a waterway would be inferior to the high-dam developments and would not permit the economical development of power" (p. 13). The board of engineers pointed out that in addition to having no value whatever for flood control, the 32 low dams, though less expensive to construct than the high dams, provided a navigation channel inferior to that of the high dam plan.

It stated its opinion that the river "has large potential value as a means of transportation and that its improvement to a depth of nine feet would ultimately make it an important feeder to the Ohio-Mississippi system" (p. 20). It concluded that "It is evident that the full utilization of the resources of this river for the public benefit requires its improvement by means of high dams built for the joint development of power and navigation."

These extracts show that consideration of the bare recommendations, apart from the conclusions expressed, are misleading. In the recommendations the division engineer disagreed with the district engineer who drew the report, as to his estimate of the amount of benefit to navigation. The board of engineers disagreed on certain points with the division engineer, and the chief of engineers, in certain matters, disagreed with all of his subordinates. But the projects actually recommended by each of these engineers were not in essential features the same as those embodied in the TVA statutes. They provided for the development of the river by private interests, or by a combination of private interests and the Government.

In order to carry out this policy, the Rivers and Harbors Act was passed in 1930, 46 Stat. 918, 927, 928, extending

OPINION OF TRIAL COURT

to private interests on certain conditions the right to develop the river by a series of high dams in co-operation with the Government. No private interest availed itself of the opportunity and in 1933 Congress delegated the task to an agency of the Government.

The program adopted by the Authority, in its main features, and the choice of the sites for the various dams follow the broader multiple-project plan outlined in House Document 328 (p. 43), commended by the board of engineers of rivers and harbors, as superior to the low dam plan. This multiple-project contemplated the erection of seven high dams in the main stream (in addition to Wilson, which had already been built), and reservoirs on the tributaries.

Uses of the Dams.

The dams on the tributaries, as outlined in House Document 328, and as shown in the evidence, are used and to be used for flood control, water regulation, power and purposes of national defense. Of the completed dams, Norris is so constructed as to be able to retain the entire flood waters of the Clinch in flood season, and was in fact so operated in 1936 and 1937. In 1936 it averted a probable flood at Chattanooga. It also generates power. Releases of water from Norris in the dry season are now used for regulation of stream flow so as to maintain a seven-foot navigable channel throughout the summer. Similar releases will be necessary until the entire series of main-stream dams as planned has been completed. Wheeler backs the water of the Tennessee into a slack water pool providing nine-foot navigation to Gunter'sville. It generates power and has a surcharge usable for flood control. It is uncontradicted that the releases from Norris and Wheeler, and from Hiwassee, Gunter'sville and Chickamauga, as planned, create and will create extra head for continuous water power at Wilson, and thus aid in the

OPINION OF TRIAL COURT

national defense. Cf. *Ashwander v. Tennessee Valley Authority*, *supra*.

Of the dams under construction, Gunter'sville, Chickamauga, and Pickwick Landing are essential to the maintenance of nine-foot navigation. Each of these dams is equipped with electric generators and has a substantial surcharge usable for flood control. Hiwassee, on a tributary, will be used mainly for flood control and power, and for aiding Wilson Dam with water releases at dry season. Until the project is completed it will assist in regulating stream flow, thus improving navigation. Gilbert'sville, while authorized by Congress, has only been investigated and surveyed. The plans for this dam have necessarily been delayed because of its size and because of the difficulty of locating suitable rock foundation. It is reasonably estimated that Gilbert'sville, when completed, will supply over 4,000,000 acre feet of flood storage, and it is the most important of the series for flood control on the Ohio and the Mississippi. The Tennessee contributes materially to the flood crest on the Ohio at Cairo. Its flood flow is almost double its drainage area in relation to other feeders of the Mississippi, because of the high precipitation in the Tennessee Valley which varies from 47.5 inches per year at Knoxville to 51.2 at Paducah on the main stream. The Ohio with its tributaries, including the Tennessee, is the principal feeder to the Mississippi floods. All of the TVA dams, on both the river and the tributaries, are used so far as constructed, are planned, as shown by the official TVA reports, and are required under the statute, to be employed as an integrated co-ordinated system for the combined purposes of navigation, flood control, power and national defense.

OPINION OF TRIAL COURT

Conspiracy, Coercion and Unlawful Competition.

The bill charges a conspiracy to injure or destroy the complainants' business, to compete unlawfully, to breach the complainants' existing contracts with their customers, to compel and coerce complainants to sell their plants at distress figures. It charges that the TVA has conspired with and practiced coercion upon municipalities and co-operatives to compel them to set up their own distribution systems for the purpose of selling TVA power at retail. If the record had substantiated the allegations of the bill, grave questions would have been presented. But these allegations have not been established. None of the complainants has sold its property except those covered by the contract of January 4, 1934, a contract entered into at arm's length and not even challenged by complainants as unfair. Since complainants have not sold, they have not been coerced to sell their properties, and the negotiations for sale presented in this record do not evidence acts deemed coercion under settled legal principles. No malice in law is shown on this record. The motive of officials who execute a law is immaterial, even though accompanied by a wrongful purpose. *Isbrandtsen-Moller Co. v. United States*, 300 U.S. 139, 145, 57 S.Ct. 407, 410, 81 L.Ed. 562.

Unlawful Competition.

Neither has unlawful competition been proved. The attempt to show that the Authority has endeavored to persuade complainants' customers to breach their existing contracts for purchase of power from complainants has totally failed. In every case where any of complainants has lost a customer to the Authority, the cause has been not unlawful competition, but the lawful allurements of substantially lower prices. In every such case the change of relationship has occurred at a time when no contract with any of the complainants was in existence. In fact, it is shown

OPINION OF TRIAL COURT

that the TVA does not serve the complainants' customers with direct service except as to industrials and "ceded areas." Thus the municipalities now served by the TVA in Tennessee,—Dayton, Pulaski, and Dickson,—each generated its own power or purchased power at wholesale from a non-utility prior to the time when the TVA started selling them power. The positive statement is made by officers of the Mississippi Power & Light Company, the Franklin Power & Light Company, the Holston River Electric Company, the Birmingham Electric Company, the Carolina Power & Light Company, the Appalachian Electric Power Company, the West Virginia Power Company, the Kingsport Company, the East Tennessee Light & Power Company, the Tennessee Eastern Company, and by the Southern Tennessee Power Company, that the TVA neither serves any of the customers of these utilities direct, nor any wholesale customer by whom distribution is made to any of these utilities' former customers. The TVA serves certain cities and customers formerly served by the Alabama Power Company, but all of these customers are situated or reside within certain counties called the "ceded area." In the agreement of January 4, 1934, the Alabama Power Company contracted that its lines should be sold to the TVA within that area, and that the TVA should serve within that district and nowhere else in Alabama. The TVA is serving nowhere else in Alabama except within this area. The Mississippi Power Company has made a similar contract with the TVA, and the TVA is not serving outside of the "ceded area" in Mississippi except to municipalities which previously maintained their own generating and distribution systems. No fraudulent attempt has been made to secure complainants' markets. Whatever compulsion exists is the inevitable compulsion exercised by the fact that a competitor sells at lower rates than complainants. But if the operation of the TVA is legal, the complainants have no legal right not to be subjected to such

OPINION OF TRIAL COURT

competition even though it curtail or destroy their business. *Alabama Power Co. v. Ickes*, 58 S.Ct. 300, 82 L.Ed. —, decided January 3, 1938.

Conspiracy with Public Works Administration.

The complainants allege that the defendants have conspired with the Public Works Administration to finance the construction of duplicating distribution lines and systems in various municipalities and co-operatives for the purpose of using TVA power and selling that power at rates so low as to constitute competition destructive to complainants' business. Numerous contracts are introduced in evidence between the Public Works Administration and municipalities and co-operatives, providing for the financing of electrical distribution projects. The power is being sold, or is contracted to be sold, to these municipalities and co-operatives at wholesale by TVA.

The facts do not establish a conspiracy. It is not questioned that loans were made within the provisions of the Public Works Administration statute, 40 U.S.C.A. §401 et seq. The validity of that statute is not attacked in this proceeding, and we therefore assume that it is valid. The acts done by Secretary Ickes and his subordinates have been done under the purview of the controlling statute. Their acts are presumed to be valid. Where no fraud, malice, or coercion is shown, co-operative action by two groups of public officials in administering the provisions of two statutes, does not constitute conspiracy. The decisions relied on by complainants with respect to unlawful concert, plan or design, involve a plan either to commit an unlawful act or to commit acts otherwise lawful with the intent to violate a statute, or commit an unlawful act. Cf. *Swift & Co. v. United States*, 196 U.S. 375, 25 S.Ct. 276, 49 L.Ed. 518. The acts done by the officials of the Public Works Administration in co-operation with the officials of the TVA, as shown by this record, were done with the in-

OPINION OF TRIAL COURT

tent to carry out the provisions of the Public Works Administration statute; the acts done by the TVA in co-operation with the Public Works Administration were done with the intent to carry out the TVA statute. Intent to execute a valid and existing law is not evidence of illegality. As to the transactions of the Public Works Administration, no evidence of conspiracy is presented.

Coercion upon Municipalities and Co-Operatives.

Certain officials and employees of the TVA gave information, counsel and encouragement to municipalities and co-operatives at the request of such municipalities and co-operatives with respect to the general feasibility of setting up distribution systems for TVA power. The decision on such matters was made by the municipality or co-operative concerned. Under the statutes of Alabama, Tennessee and Mississippi, hereinafter cited, both municipalities and rural co-operatives are authorized to construct generating plants and distribution systems for the purpose of creating and distributing electric energy. Georgia has a similar statute concerning co-operatives. These cities and co-operatives were free to obtain information and counsel from any source. In each case the decision of the municipality involved was made either by the citizens at an election, or by its duly elected officers. The decision of the co-operatives involved was made by its lawful representatives. Presentation by the Authority of facts as to TVA rates and contracts for power given to citizens or officers of a city or rural co-operative at their request do not constitute intimidation or coercion.

Damage.

The record shows that the sales of every one of these complainants and the proceeds of these sales have reached an all-time high in recent years. Several of the most important complainants have recently extended their lines,

OPINION OF TRIAL COURT

built new plants, and acquired new equipment. The Authority concedes that it sells, or intends to sell, power at substantially lower rates, residential, industrial, and rural, than those of the complainants, and that some displacement of service will result. 250 miles is the distance within which electricity can feasibly be transported from each of the dams. As a result of the lower TVA rates, cities which formerly purchased power from some one of the complainants have taken steps to finance the construction of distribution systems, or have negotiated with the power companies to purchase the existing systems of the power companies, in many instances securing financial aid from the Public Works Administration with the express purpose of selling TVA power through the systems thus acquired. The city of Memphis has issued bonds for this purpose, and under the contract which the city has signed with the Authority, the Memphis Power & Light Company will be deprived of its greatest outlet. A similar proposition has been made, but not yet carried through, in Knoxville. If the arrangement is consummated, the Tennessee Public Service Company and the Carolina Power & Light Company will each be deprived of one of its most profitable customers. A similar situation exists in Chattanooga. The rural co-operatives distribute TVA power, but for the most part they reach areas not formerly served by these complainants. The Monsanto Chemical Company of Alabama discontinued certain of its operations at Anniston, Alabama, heretofore served by the Alabama Power Company. An affiliated company, Monsanto Chemical Company of Delaware, set up a substitute plant at Columbia, Tennessee, near a source of its raw material, using power purchased from TVA. The Volunteer Portland Cement Company failed to renew its contract with Tennessee Public Service Company and, instead, entered into a contract with the Authority, a contract since assigned to the city of Knoxville.

OPINION OF TRIAL COURT

In view of the inevitable effect of the lower rates of the TVA within this area, and the economic necessity forced upon the complainants of lowering their rates to meet the competitive rates of the Authority, we conclude that the record presents evidence of substantial future damage to these complainants. But such damage constitutes *damnum absque injuria* unless sales of power by the TVA are unlawful. *Alabama Power Co. v. Ickes*, *supra*.

We find in this record no coercion, conspiracy, malice or fraud on the part of the defendants. None existing, the operation of the Authority is lawful unless (1) the defendants are exceeding their statutory authority or (2) the statute is unconstitutional.

Compliance with the Statute.

Section 9a of the statute, as added by Act Aug. 31, 1935, § 5, 16 U.S.C.A. § 831h—1 reads as follows:

"The Board is hereby directed in the operation of any dam or reservoir in its possession and control to regulate the stream flow primarily for the purposes of promoting navigation and controlling floods. So far as may be consistent with such purposes, the Board is authorized to provide and operate facilities for the generation of electric energy at any such dam for the use of the Corporation and for the use of the United States or any agency thereof, and the Board is further authorized, whenever an opportunity is afforded, to provide and operate facilities for the generation of electric energy in order to avoid the waste of water power, to transmit and market such power as in this chapter provided, and thereby, so far as may be practicable, to assist in liquidating the cost or aid in the maintenance of the projects of the Authority."

It is the principal contention of the complainants that this statute is a sham, pretense, and fraud, and these dams as built and planned cannot and will not be operated within

OPINION OF TRIAL COURT

the statute. We therefore consider the actual operation of the dams.

In Water Bulletin No. 1, dated June 30, 1936, adopted by the TVA Board, it was ordered that the reservoirs of the Authority be operated "First, to serve as navigation channels and maintain navigation depths in the reaches of the river below the reservoirs; and Second, to reduce the magnitude of flood peaks below. Requirements for the control of malaria and temporary needs of construction shall be given due consideration. So far as consistent with the above procedure, as much water power available at the dam shall be converted into electricity as is feasible."

The complainants contend that this order is a sham, and that none of the dams can be or will be operated in compliance therewith. They direct a particular attack upon Norris, which is now completed and in operation. However, Water Bulletin No. 2, dated June 30, 1936, ordered that until further notice water be released from Norris reservoir so as to maintain as nearly as may be a constant flow at Florence, Alabama, of 15,000 c. f. s. The evident purpose was to maintain a constant and sufficient stream flow for Wilson Dam. This and succeeding water bulletins, which are in evidence, outlining the same general policy, have for one of their main purposes the increase of continuous water power at Wilson. Hence, operation of the dams above Wilson is clearly constitutional under the national defense powers of the Congress.

With reference to the general operation, a resolution of the TVA Board, adopted July 1, 1936, created a committee on water control operations, consisting of the chief water control planning engineer and the chief electrical engineer, which committee was and is authorized to prepare general regulations as to the control of water through the operation of reservoirs. The regulations are transmitted to the general manager in the form of bulletins, and at times of flood or emergency, oral instructions are also given. Woodward,

OPINION OF TRIAL COURT

the chief water control planning engineer, testified that he prepares these bulletins and that none is issued without his approval. He stated that he was guided in his operations by the statute, and that the constant flow of 15,000 c. f. s. was maintained at Florence, Alabama, for the purpose of securing the necessary navigable depth in the river. Karr, electrical engineer at Norris, testified that if the limited instructions given to him for operation were such that he had either to violate the instructions or to leave a city without power, "someone would have to go without power temporarily." Woodward testified that he permits the use of the water for power, and in special cases, if extra water is wanted, it is given extra consideration. It is uncontroverted that the water control planning engineer is in direct charge of the regulation of water flow, and also that he regulates water flow from Norris primarily for navigation and flood control.

It appears that in actual operation there is a seasonal drawing down of Norris Dam so that extra storage space may be available during the flood season. Norris was actually operated during the flood of 1937 to reduce the crest on the Tennessee River and to reduce the crest on the Ohio at Cairo. The complainants' expert Kurtz was familiar with the fact that Norris was so operated. Power is produced at Norris. The defendants introduced detailed testimony as to the full amount of TVA power presently produced, the available facilities for generation, the possibilities for future generation, the present load and the load now contracted for.

Complainants urge that the estimated future TVA load set forth in the various TVA reports, and the load it may reasonably be expected to acquire because of its substantially lower rates, will demand that the dams built and to be built be operated in violation of the statute and not (as required in section 9a) in the primary interest of navigation and flood control. But this point is completely refuted by

OPINION OF TRIAL COURT

the numerous TVA contracts which are in evidence and are described in the findings of fact.

These contracts generally contain a clause relieving the Authority of any obligation to supply power when prevented by fire, accident, breakdown, act of God, or any other causes beyond the Authority's control. Substantially all of these contracts contain the following provision: "Subject to the provisions of the Tennessee Valley Authority Act of 1933 as amended, the parties hereto agree as follows" Under the familiar rule, this provision reads the statute, including its mandatory requirement that the dams and reservoirs be operated primarily for flood control and navigation, into every one of these contracts. Under the contracts with the Arkansas Power and Light Company, the Victor Chemical Works, the Aluminum Company of America dated July 20, 1937, and with the Electro-Metallurgical Company, which are contracts both for firm and secondary power, the Authority is expressly relieved of obligation to supply power when service is interrupted or suspended by reason of floods or back-water caused by floods.

Reading these contracts in conjunction with the statute and the general resolution governing water control above described, it is evident that the long-term contracts of the Authority strongly corroborate (1) the sincerity of the resolution and water bulletins establishing the system of water control in the interest of flood control and navigation; (2) the testimony of Woodward and Karr; (3) the uncontradicted facts as to the principles applied in the actual operation of the dams. The overwhelming weight of the testimony supports defendants' contention that the mandatory provision of the statute that navigation and flood control be given primary consideration both at the other dams, built and planned, and at Norris Dam, is at all times scrupulously followed and that the statute is neither violated nor exceeded.

OPINION OF TRIAL COURT

Constitutionality of TVA Statute must be Determined.

Since no fraud, coercion, conspiracy or malice is shown, and since the Authority has acted within the provisions of the statute under consideration, unless the statute itself is unconstitutional the dams are lawfully erected, the energy is lawfully created, and the water power is the property of the United States. *Ashwander v. Tennessee Valley Authority*, supra. It therefore is essential to the decision of the case pleaded in the bill to determine the constitutionality of this statute.

The Statute.

The complainants contend that the statute was enacted primarily for power purposes, and that flood control, navigation, and national defense are incidental and merely a cloak for the unlawful purpose of permitting the government to enter the power business. The defendants contend that the statute was passed and that dams were erected and are under construction, or were authorized, for the purpose of combined flood control, navigation, and national defense; and that the installation of generators, the creation of power and its sale, have been authorized by the Congress as an incident to the exercise of constitutional powers.

National Defense.

Article 1, section 8, clause 1 of the Constitution of the United States, provides that the Congress shall have power "to . . . provide for the common Defence and general Welfare of the United States."

In pursuance of this power it may make all laws which shall be necessary and proper for carrying into execution the national defense powers. An express purpose of the Tennessee Valley Authority Act is that of maintaining the

OPINION OF TRIAL COURT

properties owned by the United States in the vicinity of Muscle Shoals, Alabama, in the interest of national defense. The amended Tennessee Valley Authority Act, § 17, Title 16 U.S.C.A. § 831p, provides that "The Secretary of War, or the Secretary of the Interior, is hereby authorized to construct . . . a dam in and across Clinch River in the State of Tennessee, which has by long custom become known and designated as the Cove Creek Dam, together with a transmission line from Muscle Shoals, according to the latest and most approved designs, including power house and hydroelectric installations and equipment for the generation of power, in order that the waters of the said Clinch River may be impounded and stored above said dam for the purpose of increasing and regulating the flow of the Clinch River and the Tennessee River below, so that the maximum amount of primary power may be developed at Dam Numbered 2 and at any and all other dams below the said Cove Creek Dam."

In compliance with this provision, Norris Dam was built and is being operated to create extra head of water power at Wilson Dam. This means that constitutional authority to construct Norris exists in addition to the congressional power to authorize the construction of this dam under other clauses of the Constitution of the United States.

Navigation and Flood Control.

The Constitution of the United States, article 1, § 8, cl. 3, provides that the Congress shall have power to regulate interstate commerce. Commerce includes navigation. *Gibbons v. Ogden*, 9 Wheat. 1, 6 L.Ed. 23. Congressional control of navigable waters embraces flood control.

The statute on its face repeatedly stresses navigation and flood control. The purpose clause of the act reads:

"To improve the navigability and to provide for the flood control of the Tennessee River; to provide for re-

OPINION OF TRIAL COURT

forestation and the proper use of marginal lands in the Tennessee Valley; to provide for the agricultural and industrial development of said valley; to provide for the national defense by the creation of a corporation for the operation of Government properties at and near Muscle Shoals in the State of Alabama, and for other purposes." 48 Stat. 58.

The first section of the enactment, 16 U.S.C.A. § 831, creates the Authority for the purpose of maintaining and operating properties owned by the United States in the vicinity of Muscle Shoals in the interest of the national defense and "to improve navigation in the Tennessee River and to control the destructive flood waters in the Tennessee River and Mississippi River Basins." The board of the Authority is given power, section 4(j), as amended, 16 U.S.C.A. § 831c(j) "to construct such dams, and reservoirs, in the Tennessee River and its tributaries, as in conjunction with Wilson Dam, and Norris, Wheeler, and Pickwick Landing Dams * * * will provide a nine-foot channel in the said river and maintain a water supply for the same, from Knoxville to its mouth, and will best serve to promote navigation on the Tennessee River and its tributaries and control destructive flood waters in the Tennessee and Mississippi River drainage basins." Other sections in which the purposes of navigation and flood control are stressed are sections 13, 18, 23, and section 26a, as added by Act Aug. 31, 1935, § 11, 16 U.S.C.A. §§ 831i, 831q, 831v, 831y—1. The most important section is 9a, 16 U.S.C.A. § 831h—1, heretofore quoted, which governs the operation of any dam or reservoir, in the possession and control of the board, and requires the board to regulate the stream flow primarily for the purposes of promoting navigation and controlling floods. Numerous specific provisions of the statute relate to the generation and sale of electric power for the purpose of assisting in liquidating the cost

OPINION OF TRIAL COURT

of these projects, but all of them are limited and controlled by this general provision in section 9a.

Under the statute, therefore, the generation of electric energy is specifically required to be incidental to the exercise of constitutional powers under the interstate commerce clause, and the operation complies with this requirement. The record shows that the dams are adapted by their construction to combined use for flood control and improved navigation, and to generate electricity. All experts agree that the pondage at each of the dams on the main river and also at the storage dams on the tributaries can be drawn down, and that space thereby made available is capable of being used to store flood waters in the rainy season. It appears from the uncontroverted testimony that the erection of the main-river dams will create a nine-foot navigable channel. We find from the weight of the evidence that Norris has been used for the purpose of controlling floods. These facts are not controverted, except by opinion evidence.

Certain expert witnesses, in answer to hypothetical questions, stated that the dams might be operated for the primary purpose of power. Thousands of pages of testimony and numerous exhibits were introduced to show that Congress might have adopted a better plan than the TVA Unified System. Experts equally qualified testified to the contrary.

The court is of opinion that the relative value of these various plans is immaterial, since it has been established that the TVA project is reasonably adapted to use for combined flood control, navigation, power and national defense, and that in actual operation the creation of energy is subordinated to the needs of navigation and flood control.

In short, the contention that the statute and the unified project authorized therein are a sham and pretense is without foundation. It cannot be disputed that the river is

OPINION OF TRIAL COURT

navigable and that it occupies a strategic position with relation to floods, both within its own drainage area and on the Ohio-Mississippi. We are not at liberty to conclude that the river is not susceptible of development as an important waterway, nor that it cannot be regulated so as to assist substantially in the control of floods in the alluvial valley of the Mississippi as well as practically eliminating local floods on the Tennessee River. *Ashwander v. Tennessee Valley Authority*, supra. Norris will create additional power for use for purposes of national defense at Wilson. Hence, we are not at liberty to conclude that the Congress has not undertaken this specific development for purposes within its constitutional powers, nor that the construction of these high dams and reservoirs along the lines proposed is not an appropriate means to accomplish these legitimate ends. Cf. *Ashwander v. Tennessee Valley Authority*, supra. The dams and their power equipment, both constructed, under construction and authorized, must be taken to have been authorized, constructed and planned in the exercise of the constitutional functions of the Government.

Interference with States' Rights.

Complainants contend that the TVA statutes constitute an unlawful interference with the police power of the states because they regulate the rates of utilities which themselves are subject to state regulation. The statute does not fix, nor purport to fix, the complainants' rates. But the contention is that the lower rates of the TVA will inevitably force complainants to lower their rates, and also that the TVA in its operations is not subject to the police power of the state.

The Authority operates within four of the nine states in which these complainants do business, namely, Tennessee, Alabama, Mississippi, and Georgia, its contracts with cities and co-operatives in Tennessee, Alabama and Mississippi being authorized by express legislation. All mu-

OPINION OF TRIAL COURT

municipalities in these three states have the statutory power to own and operate electric distribution systems. General Laws of Mississippi 1936, c. 185; Carmichael Act, Alabama Code Supp. 1936, § 2001 (1) et seq.; Public Acts of Tennessee 1935, c. 32, Tennessee Code, § 3708 (1) et seq. In Mississippi, Tennessee and Alabama, municipalities are expressly authorized to contract for TVA power and to make agreements with TVA as to resale rates. Chapter 271, General Laws of Mississippi 1936; chapter 37, Public Acts of Tennessee 1935, Tennessee Code, § 3708 (96) et seq.; Alabama Code Supp. 1936, § 687 (62). In Mississippi, Tennessee and Alabama, non-profit membership corporations such as rural co-operatives may operate electric systems, purchase from TVA, and make contracts as to re-sale rates. This is also true in Georgia, where the North Georgia Membership Corporation is alleged to compete with the Tennessee Electric Power Company. Chapter 184, General Laws of Mississippi 1936; Chapter 231, Public Acts of Tennessee 1937, which is an amendment of the Electric Membership Corporation Act of 1935, Pub. Acts 1935, Ex. Sess., c. 32; Alabama Code Supp. 1936, § 687 (18) et seq.; Georgia Laws 1937, p. 644.

The Supreme Court of Alabama has upheld the validity of the Carmichael Act, section 2001 (1) et seq., Alabama Code Supp. 1936, in *Oppenheim v. Florence*, 229 Ala. 50, 155 So. 859. The similar act relating to co-operatives was sustained by the Supreme Court of Alabama in *Alabama Power Co. v. Cullman County Electric Membership Corp.*, 234 Ala. 396, 174 So. 866. In Tennessee the Supreme Court has upheld the right of the cities of Memphis and Chattanooga to buy TVA power and to establish their own electric systems under special laws. *Memphis Power & Light Co. v. Memphis*, Dec. term, 1936, 112 S.W.2d 817; *Tennessee Electric Power Co. v. Chattanooga*, Dec. term, 1936, 114 S.W.2d 441; *Tennessee Public Service Co. v. Knoxville*, 170 Tenn. 40, 91 S.W.2d 566.

OPINION OF TRIAL COURT

The actions which the complainants attack are authorized by the states themselves. It is strange doctrine that acts authorized by a sovereign state constitute interference with its sovereign rights because of the fact that they are also authorized by the Federal Government. We think that deliberate co-operation between the state and the United States, authorized in each case both by the state legislature and by the Congress, constitutes no abdication of any state right.

Moreover, no state has intervened as a party in this proceeding to protest that its laws are violated by the TVA, and no regulatory commission is a party to this action. These complainants are not authorized to object on behalf of the states. *Georgia Power Co. v. Tennessee Valley Authority*, D.C., 14 F.Supp. 673, 676. Questions of the conflict of the TVA statute with the sovereign power of the states are not properly raised until the interested parties are before the court. *Georgia Power Co. v. Tennessee Valley Authority*, supra. The TVA statutes do not violate either the Ninth or the Tenth Amendment to the Constitution of the United States.

Since the United States has acquired these dam sites and constructed these dams legally, the water power, the right to convert it into electric energy, and the energy produced constitute property belonging to the United States. *Ashwander v. Tennessee Valley Authority*, supra. This electric energy may be rightfully disposed of by the United States through the action of the Congress, under section 3 of article 4 of the Constitution of the United States. *Ashwander v. Tennessee Valley Authority*, supra. Since floods frequently recur, and the needs of navigation are continuous, hydroelectric power generated at dams which control floods and improve navigation is continuously created, and the Government may adopt any appropriate constitutional means of disposing of the property. It is not limited in such disposition to a few, or to infrequent transactions.

OPINION OF TRIAL COURT

This is the inevitable logic of the Ashwander decision, *supra*, 297 U.S. 288, at page 315, 56 S.Ct. 466, 468, 80 L.Ed. 688, in which every kind of electric facility, many miles of distribution and transmission lines and continuous and permanent operation were called in question because the contract attacked in that case was the contract of January 4, 1934, in which certain of these complainants, for valuable consideration, ceded sixteen counties to the TVA for electric service.

While the Government, in selling property of the United States, performs many functions that would be performed in the operation of a private business trading in similar property, inasmuch as the energy sold is created at dams lawfully erected within the Federal power, the Government in performing these functions is not entering into private business. It is merely using an appropriate method of disposing of its property. The Government may sell land belonging to the United States in competition with a real estate agency, carry parcels in competition with express companies, and manage and control its thousands of square miles of national parks even as a private company. The Government has an equal right to sell hydro-electric power, lawfully created, in competition with a private utility. There is no constitutional authority which denies the Government the right to seek a wider market (*Ashwander v. Tennessee Valley Authority, supra*), and the transmission and distribution lines erected are a proper facility for conveying the property of the United States to the market. The creation of the Authority is appropriate. The disposition of the energy is continuous and constant, and it is appropriate that a continuing agency be created in order to carry out this legitimate federal function.

We conclude that, since none of the complainants claims to operate under an exclusive franchise; since no fraud, malice, coercion, or conspiracy exists; since the Authority is not exceeding its statutory powers, and since the statute

OPINION OF TRIAL COURT

is constitutional, the competition with these complainants is lawful. It follows that the holding in *Alabama Power Co. v. Ickes*, *supra*, recently decided, squarely applies. These complainants have no immunity from lawful competition, even if their business be curtailed or destroyed.

A decree will be entered denying the injunction sought, dismissing the bill of complainants, and taxing costs against the complainants. Findings of fact and conclusions of law will be filed.